OBSERVATIONS

ON

SOME OF THE MOST IMPORTANT POINTS CONNECTED WITH
THE CONSIDERATION AND TREATMENT

OF

CHOLERA ASPHYXIA.

BY

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TO

THE RIGHT HONORABLE

LORD WILLIAM CAVENDISH BENTINCK,

G. C. B., G. C. H.

Governor General of India,

&c. &c. &c.

My Lord,

Should the following observations be found of any benefit to my fellow creatures, to your Lordship they will be indebted for it; for unsolicited, you called me from obscurity, to fulfil the duties of an office, to which I would not otherwise have probably thought of aspiring. To the advantages, which I derived from that situation, is in a great measure to be ascribed any information, which these pages may be found to contain.

Permit me to add; when the lesser triumphs of your Lordship's administration of the affairs of this Empire are recorded, the fostering care, with which you have sought out, and rewarded men of talent and industry, will surely not be forgotten; and I trust, that my saying so, on the present occasion, will not be imputed to unworthy motives.

I have the honor to be,
Your Lordship's
Most obedient Servant,
J. HUTCHINSON.

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ON

CHOLERA ASPHYXIA.

PART I.

NOTICE.

That the present little Work has many imperfections, the author is well aware. Some of these a little time would, no doubt, have enabled him to correct; but he had it not to spare; besides, he would have scarcely held himself justifiable, in longer withholding information, which appeared to him valuable, and which had fallen, by accident, as it were, into his hands. A future opportunity perhaps may enable him to lay it before the public, in a form more worthy of their patronage.

Chowringhee,
August 15*th*, 1832.

INTRODUCTION.

At a time like the present, when public attention is so much directed to the consideration of Cholera Morbus, and when the prospect of that dreadful scourge, reaching the shores of our native land, is far from imaginary, I consider it the duty of every medical officer, who thinks he can throw any new light on the subject, to communicate his sentiments to the public, for the general good. Under this impression, I have thrown together the following observations, which have been gleaned from my experience in practice, and from reflection on what I have read on the subject.

The various publications which have been given to the world on this disease, by Indian practitioners, have almost without exception, been works of singular merit; indeed those of Jamieson, Scot, Orton, and Kennedy, would add lustre to the medical literature of any country; but while we feel grateful to these eminent men, for what they have done in the cause, let us candidly confess, that many of the phenomena of the disease are yet involved in doubt and darkness, and that any thing like a successful mode of combating its attacks is still wanting. The members of the Society* are so fully acquainted with what has already been written on the subject, that it would be worse than useless in me, to occupy their limited time, by laying a detailed account of the disease before them. I shall, accordingly, content myself with skimming the surface, and entering more at length on those points which seem to require elucidation, or on which it may appear to me, that I have any thing new to offer.

The able and luminous reports of the Bengal and Madras Medical Boards have left us no longer in doubt, that many of the ancient writers on medicine, were familiar with the disease: —Aretæus, Cœlius Aurelianus, Paulus Œgineta, Celsus, and Avicenna, all distinctly mention it; and when we descend to more modern times, the descriptions of Sydenham, Bontius, Clarke, Curtis, Girdlestone, and Johnson, are equally satisfactory. It was at first supposed, that the disease had never shown itself in an epidemic form previous to the awful visitation in 1817; the researches, however, of Messrs. Scot and Jamieson have shown, that on various occasions, prior to that period, it had ravaged large tracts of country, both in the peninsula, and on the continent of India.

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* This paper was written originally for the Medical and Physical Society of Calcutta: it was presented on the 7th of January, 1832, and subsequently withdrawn.

I have consulted Colonel Dow's translation of the History of Ferishta, with the view of ascertaining, if the disease had ever visited Hindoostan, in the earlier periods of its history; but the only notice of any pestilence, which I have been able to find in that work, is the following: "This year was remarkable for a great drought "and famine, in many parts of the world. The "famine was succeeded by a calamitous pestilence, "which swept away thousands from the face of the "earth: for in less than one month, forty thousand "died in Ispahan alone; nor did it rage with less "violence in Hindoostan, where whole countries "were depopulated*." Though I do not consider this passage to allude to Cholera, it is not devoid of interest at present, when we are in no little alarm for the introduction of plague from the ports of Arabia, and when there are not wanting some fool-hardy enough to imagine, that the disease could not be propagated in this country.

It appears, that the charge brought against the ancient medical writers, of supposing the disease to consist in an increased flow of bile, has been unjustly made. The scholastic attainments of Dr. Kennedy, in particular, have been successfully exerted to demonstrate, that the terms χολη and *bilis* were not confined to the biliary secretion; but were indiscriminately applied to it, and some other discharges. The writings of the earlier British practitioners in this country may, at some future day, call forth a champion, in a similar cause, who may not be equally successful in their defence.

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* Vide vol. i. p. 99.

A REVIEW

OF

THE ARGUMENTS FOR, AND AGAINST, THE CONTAGIOUS NATURE OF THE DISEASE.

It may be questioned, by well-intentioned persons, how far it would be justifiable to attempt to establish a belief, in the contagious nature of Cholera. For my part, I cannot conceive that the attainment of truth, in any instance, can be prejudicial to the interests of society. After a fair inquiry, should there appear to be good reason for believing, that Cholera is contagious, the mass of suffering, which might hereafter be averted by appropriate measures of prevention, might surely be expected to more than counterbalance any disadvantages that could reasonably be expected to accrue from it. These would probably amount to little more than keeping a few idle and useless spectators at a distance, and thus prove the means of enabling the patient to breathe a purer atmosphere than he otherwise could do.

Cholera Morbus, like almost every other epidemic disease, appears to be contagious. It is not my intention, however, to confine myself to mere assertion, or unsupported opinion ; such a course of proceeding would be as little satisfactory to myself, as to the public. I proceed, accordingly, to lay before them, the grounds on which I have arrived at that conclusion. The writer of a letter, which appeared in the public prints at home, under the signature of Sir Anthony Carlisle, has hazarded an assertion, that diseases which shew no marks of being of an infectious nature, on the borders of the tropics, may become pre-eminently so, in the colder temperatures of higher latitudes, and has referred to the progress and generally received opinion entertained of the Russian Cholera, as a striking illustration of the fact: without disputing the probability of the general principle, I trust I shall be able to adduce proofs sufficiently satisfactory to an unprejudiced mind, that the grand epidemic Cholera of 1817-18, was decidedly of that character. Before entering on these proofs, it may be as well to offer a few preliminary observations, with the view of clearing the ground of controversy of any difficulties, which would unnecessarily distract the attention of the reader, at a time when the concentrated powers of the mind are required, for a clear view of the different bearings of the evidence. Were Cholera Morbus obviously contagious, it would be unnecessary for me to traspass on the attention of the public, on the present occasion; we can only then, it appears, in the course of our inquiry, rationally expect to discover the minor shades of that character. The profession and the public generally appear to me, hitherto, to have been led astray in the investigation by two important sources of error. They have too commonly arrayed the evidence for and against the contagious character of the disease, as if they were of equal value; and have totally forgotten that, on one side, the proof is of a positive, and on the other, merely of a negative nature, and that one single positive proof must instantly invalidate a whole chain of evidence, however apparently satisfactory, if merely of a negative character. Thus, if a single person enter the chamber of a patient labouring under typhus, and actually catch the disorder, it is a proof of its infectious character; although thirty other persons may follow, and escape with impunity. Again, those who oppose the doctrine of contagion, have too often with a blind perverseness, attributed, or argued, as if they attributed to the supporters of the opposite theory, the belief, that the disease is propagated by that influence alone; but this is, in reality, far from being the case, for the generality of those, who believe in its contagious nature, at the same time, fully admit its propagation by epidemic influence; and, in my opinion, by the admission alone, of this double power of extending its ravages, can the phenomena of Cholera Morbus be adequately accounted for. What the precise nature of that influence may be, it would be premature to inquire at this stage of our progress. It may be permitted me, however, to remark, with the view of enabling the reader to follow the train of reasoning employed, that the experience of all ages has concurred, in attributing it to a peculiar state of the atmosphere, and in supposing, that the deviation from its usual state is, in general, more widely diffused than the malaria or local poison, which engenders endemic disorders.

We have a little more difficult task to perform, in sifting the various and conflicting testimonies on the subject, and ascertaining the real value of each. At times when the public mind is in a state of agitation and alarm, there are not wanting impostors, who, for the sake of a little brief notoriety, give publicity to statements which are entirely false; others, again, observe, and faithfully record, what they have seen; but, with precipitate haste attribute effects to certain causes, which, however, may be far from being the true ones; and finally, occasionally certain opinions take such entire possession of the mind, as to blind it, at once, to all useful inquiry; insomuch, that it will warp and distort facts themselves, to the support of some imaginary theory, or pre-conceived opinion. In illustration of this, the reader would scarcely imagine, that the following passage was written by one of the most talented and accomplished men, that ever served in this country. Dr. Jamieson, speaking of the non-contagious nature of the disease, remarks: "Now, this uniformity of "rise and declension appears to be quite inexplica- "ble, upon the supposition of contagion; for, if "the virus were capable of reproducing itself "through the medium of the effluvia, or secretions "of individuals already infected, it must have gone "on augmenting, until it had either no longer

" subjects upon whom to exercise itself, or were " counteracted by some means more powerful than " itself,—as uncongenial seasons or segregation, and " the other prophylactic expedients resorted to on " such occasions. Such at least is the course " commonly pursued by those great scourges, the " small-pox and the plague. These, when unfor" tunately introduced into a city or tract of country, " not only for a time remain attached to it, but " manifestly depending on contagion, go on daily " increasing and perpetuating themselves by fresh " accessions of infectious matter, until they have " either depopulated the place, or are checked by " some of the counteracting circumstances just " mentioned*." After this fearful announcement, let us pause and inquire, how we are here, and how the world has escaped depopulation? Will the admirers of this doctrine have the hardihood to assert, that this was the course of the several influenzas, which have at various times, raged as epidemics, some of which have swept from one end of the known world to the other, unchecked by any circumstances of season or climate. But, admitting for a moment the perfect accuracy of Dr. Jamieson's statement, the argument it contains, would tend rather to prove the non-contagious character of small-pox and plague than of Cholera Morbus; for the two former, highly contagious as they confessedly are, he has shown, are subject to certain natural restraints, whereas the latter has pursued an almost equal pace, unaffected by any changes of season or climate, with which we are acquainted. It may be asked, how then is the decline of this dreadful scourge in different towns and villages to be accounted for ? The answer is simple and evident, in two ways ; first, the epidemic influence becomes weaker, and secondly, the constitutions of the inhabitants become accustomed to its action ; and so true is this, with respect to the plague, that after it has ceased for a month in a town, and those, who had fled on its approach, have returned to their dwellings, it is not uncommon for them to be attacked by the disease ; although the whole of those who had undergone the seasoning, retain their accustomed health. But in case some of the supporters of Dr. Jamieson's doctrine should still fancy, that the objection has not been satisfactorily combated, let the Doctor answer for himself ; and this he does in a very conclusive manner, in the following words : —" The reason rather seems to have been, that " in this quarter the epidemic, whether from the " pure and elastic air of the northern provinces " being less favorable to its existence, than the " thick damp climate of Bengal ; *or from its beginning to give way to that general law of nature, " which requires that diseases, like all other " things, should have their decrements as well as " their rise and increase ;* or from some other hidden agency altogether unsuspected, was now

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* Bengal Report, page 127.

"beginning to die away, and could only be kept "alive by strongly exciting causes*."

We have seen enough then to satisfy us, that diseases of a highly infectious character have their periods of rise, maturity, and decline, and that without the assistance of the epidemic influence of the atmosphere, the power of the contagion becomes comparatively or entirely innocuous; that this is precisely the case in Cholera, I shall have occasion, perhaps more than once, to point out hereafter.

It is time, that we should now proceed to examine particular portions, of the evidence for and against the contagious character of the disease; and although Dr. Jamieson has come to the conclusion, that it is not infectious, so satisfied am I with the evidence contained in his work to the contrary that I shall trouble myself very little with any facts, which may not be found in that record.

The only two ways, and this I wish the reader to bear in mind, in which it is attempted to account for the phenomena of the great epidemic Cholera, are the following:—First, that it depended solely and entirely on a certain epidemic influence in the air; and this influence alone do the supporters of the non-contagious nature of the disease admit; and secondly, by the epidemic influence above-mentioned, conjointly with contagion; a doctrine in which I confess myself inclined to believe. Bearing this particularly in mind, let us proceed to compare acknowledged facts with either doctrine, and ascertain by which they can be most satisfactorily accounted for. Dr. Jamieson commences his report with a detailed account of the rise and progress of the epidemic in Bengal, the whole of which, though highly important, my confined limits prevent me from quoting ; he concludes it, however, in these words :—" These facts are more than sufficient to show the fallacy of every theory which " attempts to derive the disease from any local " source, or to trace it to any one particular spot, " as the centre from which it was emitted to the " surrounding countries. They prove, without the " possibility of dispute, that it broke out at very " remote places at one and the same time, or at " the distance of such short intervals as to establish the impossibility of the pestilential virus " being, in this stage of its progress, propagated " by contagion, or any of the other known modes " of successive production ; and that its general " diffusion was therefore, referable to some cause " of more universal operation*."

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* Bengal Report, page 27.

" It appears, from accounts received since this " sketch was drawn up, that the disease had ravaged " Nusseerabad, a town in Mymunsingh, in June ; " and had even largely affected the south eastern " division of that district, in the early part of the " month, or *last days of May ;* following the course " of the Burrumpooter, and irregularly attacking " the villages on its banks†."

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* Bengal Report, page 7.

† Ibid. Note, page 6.

" A few dates may be remarked of the principal " places attacked, in the early part of the progress " of the epidemic, according to the order of their " succession. May and June, one thannah or " police division of Kishnagur and Mymunsingh " generally. July, eight divisions of the former " district; Sonargong in the Dacca. August, in " the first week, Calcutta, Dacca, and Dinapore; " about the middle, Nattore; on the 17th, Sylhet; " on the 19th, Jessore, and towards the end of the " month, Bhagulpore and Monghyr; Sept. 15th, " Balasore, Burrisaul, Burdwan; 17th, Buxar; " 18th, Chupprah and Ghazeepore, and in the latter " part, Moozuffurpore. October, Bauleah; 15th, " Berhampore and Rungpore. It is only necessary " to cast one's eye over the map, to perceive how " irreconcilable these dates and the intermediate " distances are with the suspicion of a local origin*." Now, although I do not mean to deny, that the disease may have arisen simultaneously at different places, I have cast my eye over the map, as directed, and admitting, which there is every reason to believe, that the disease did arise in the country situated between Mymunsingh and Nuddeah, and supposing its contagious influence to have spread equally around, like radii from a common centre, with a fair allowance for accidental circumstances, such as the more or less frequented state of certain routes, I can see no one instance, which is not perfectly explicable, on the supposition of its having spread by contagion. Dr. Jamieson would almost appear to have wilfully shut his eyes to the *truth*, when he asserts, " That the disease arose " nearly at one and the same time, at many different " places; and that in the same month, nay, in the " same week, it was raging in the unconnected " and far distant districts of Behar and Dacca. It " will not be argued, that the virus travelled or " was conveyed over the many hundred miles intervening between the cities of Patna and Dacca " within a few days; since all experience proves, " that where it really did appear to be communicated from place to place, as along the course " of the Jumna, its march was exceedingly slow, " scarcely averaging a few miles a day*." Unfortunately for Dr. Jamieson, there is no occasion to make such a supposition; if the disease broke out in the country between Mymunsingh and Nuddeah, which he acknowledges it did, in May, there is no improbability in supposing its contagious influence to have reached in opposite directions to the cities of Patna and Dacca, by the 11th of July.

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* Note, page 7.

At the risk of incurring the censure of prolixity, I shall give one more example, to show the difficulties into which the support of a bad cause has drawn a naturally acute mind. Dr. Jamieson is desirous of invalidating the testimony of certain medical officers who were of opinion, that the disease had been introduced into camp by an infect-

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* Bengal Report, page 125.

ed body of men, and proceeds thus:—" With re-
" gard to the appearance of the disease in the main
" body of the division, the testimony of different
" individuals is so much at variance as to be quite
" irreconcilable. Of twelve medical officers who
" have given replies to queries on this point, one
" states the disorder to have broken out on the
" 6th, two on the 7th, one on the 8th, two on the
" 9th, one on the 10th, four on the 11th, and one
" on the 12th. This discrepancy, however great,
" is easily explicable, when the insidious nature of
" the disease, at its first onset, is taken into ac-
" count; and when it is recollected, that the sphere
" of each individual's observation would hardly
" extend beyond the battalion immediately under
" his charge. But how are we to reconcile the
" assertion of its having appeared on the 6th, 7th,
" 8th, or even the 9th, with the assumed hypothe-
" sis of infection from the Shergurh detachment* ?"
The reader is, no doubt, anxious to know how the difficulty was at last solved, and he shall read it in Dr. Jamieson's own words; although the explanation is a little at variance with the doctrine of non-contagion, for which he has all along been contending. " We are assured by a gentleman, not of
" the medical profession, but perfectly capable of
" ascertaining the fact, that the disease was brought
" into camp at Terayt on the 6th, by the Rajah of
" Sumpter's troops, who came for the purpose of
" being reviewed, and took post in the rear of the

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* Bengal Report, page 141.

" 25th Regiment Native Infantry, and it was report-
" ed to the Commander-in-Chief, that in the town
" of that name, ravages had been committed by it
" six weeks before the army crossed the Jumna*."

Let us now proceed to inquire, in how far the objections urged by the supporters of the non-contagious nature of the disease appear to be of an insuperable character? It is argued, that medical officers and hospital servants have not suffered more severely than any other class of the community. The objection, if well founded, would still be far from being conclusive, for it is a well known fact, that they are much less subject to the influence of infection than other people ; that plague is highly infectious few will be inclined to doubt, and yet Dr. Good informs us, " that M. Assalini traces
" the progress of the plague among the French
" army in Egypt with great care, and asserts, that
" even those who associated with the sick were
" seldom infected, unless inmated in their rooms,
" and instances the small degree of danger there
" is from casual intercourse, by showing how very
" rarely the medical attendants suffered†." Notwithstanding this, the objection, weak as it is, had it been well founded, would have been one of the strongest proofs of the non-contagious nature of the disease yet advanced, by the supporters of that doctrine. But though I am not prepared to deny

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[*] Page 142.

[†] Good's Study of Medecine, vol. ii. page 431.

the truth of Dr. Jamieson's assertion, in so far as regards what took place in Bengal, let us examine in how far it coincides with the opinions and facts brought forward by others. Out of from twelve to fifteen native doctors, who have served under me, since I have been in the country, three have been seized with the disease, one of whom died of it. Dr. Craw, in his letter to Dr. Jukes, asserts, that of an hospital establishment of thirty persons attached to His Majesty's 65th Regiment, not one escaped the disease. Dr. Jamieson has recorded, that of five persons who carried to the funeral pile the body of a deceased comrade, who had died of the disease, every one was attacked with, and died of it*. Dr. Kennedy has shown, that in the year 1825-26, an unusually large proportion of medical men died of the disease, on the Bombay establishment; and the account of the Madras Medical Board is so full and satisfactory on this head, that we can no longer doubt that, though Mr. Jamieson may have accurately recorded what occurred on this establishment, the immunity of medical officers on that occasion was accidental, and that they are far more liable to the disease than any other class of the community. But Mr. Scot shall speak for himself—" Sometimes whole families have been " swept off successively; servants have often been " observed to sicken after attending their masters. " The instances, however, above-recited, are by no " means uniform; they are indeed opposed by di-

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* Kennedy on Cholera, p. 54.

"rectly opposite experiences; but it is contended, "that a greater proportion of people, occupied as "above described, have been attacked with Cholera, than has been observed to be the case in an "equal number of people who were not employed "amongst the sick. It should be remembered, also, that medical men, and hospital dressers, and "servants, being inured to the contact of the sick, "are less liable on that account to receive infection. The exact number of medical officers and "servants, who have experienced attacks of Cholera, during the prevalence of that disease, in the "hospitals at which they officiated, cannot be ascertained. It is known, however, that thirteen "medical officers of this establishment have died "of the disease, and that between fifteen and twenty suffered attacks of it, but recovered; in, perhaps, every instance the officers had been previously engaged with patients under Cholera. The "circumstances of some of these attacks are very "remarkable. The medical officer, in repeated instances, has been the only European in the corps "or station who has suffered. Dr. Daun and Mr. "Assistant Surgeon Gray, His Majesty's 89th Regiment, were both seized with the disease after "intimate intercourse with the sick, and the two "friends who attended the latter, during his severe "illness, were also seized, while no European officer "of the corps suffered†."

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† Madras Report, p. 49.

Dr. Russell, who, while he resided in this country, was, of course, an opponent of the doctrine of contagion, now fairly admits it; for he says, in his Report on the Russian Cholera,—vide Lancet, Sept. 3. "It is curious, that the persons "employed about these typhoid cases, when they "are attacked, are never seized with ordinary "Fever, but with genuine cold, blue Cholera; nothing, therefore, is more certain, than that persons may come to the coast of England, apparently labouring under common feverish indisposition, "who really and truly are suffering under Cholera, "in the second stage." Dr. Russell goes on to say, "The number of medical men and hospital attendants attacked with Cholera, during the present "epidemic, in proportion to the whole employed, "and to the other classes of society, has been, beyond all comparison, greater here than in India, "under similar circumstances. Twenty-five medical men have been already seized, and nine have "died out of two hundred and sixty-four; four "others have died at Cronstadt, out of a very small "number residing in that fortress, at the time the "disease broke out there; six attendants have been "taken ill, at a small temporary hospital, behind "the Aboucoff, since we wrote last. It is certain, "however, that in some Cholera hospitals, favorably circumstanced, as to size, *ventilation, and* "*space*, very few of the attendants have suffered.

"Relapses are rare in this epidemic, nor have "they often been attended with fatal results. "*Hospital servants seem to have been most liable* "*to them,—one physician had three attacks, the* "*second, seven,*" &c. &c.

It is objected to the doctrine of contagion, that, in several instances, while the inhabitants of a town have been suffering severely from the disease, those employed in posts, with sometimes only the distance of the breadth of a street between them and the infected, and without any restriction on intercourse whatsoever, have entirely escaped, and in like manner, that one of the little islands at the mouth of the Megna escaped the disease, while the others suffered in the usual degree. Now, admitting the perfect accuracy of these facts, let us ask, if infectious diseases are not occasionally confined to certain quarters of cities at home, and if the instances under review can be attributed, with one-half the probability, to a general corrupt state of the atmosphere, as to casual escape from contagion?

It has, in like manner, been attempted, with a strange perverseness, to bring forward the fact of one corps in a camp being alone infected, although its intercourse with others has been unrestricted, as a proof of the non-contagious nature of the disease; but let us ask, if the communication between the men of one regiment is likely to be so intimate with those of another as with their own comrades, and likewise if the circumstance can be so satisfactorily accounted for, by referring the source of the evil to the atmosphere, as to contagion? The following may be selected as a specimen of the reasoning of the anti-contagionists on this point:

—" From the centre division, a few days previous-" ly to the breaking out of the epidemic, a small " force, consisting of four troops of the 7th Regi-" ment Native Cavalry, three light companies of " sepoys, and the Dromedary Corps, was detached on " particular service in the neighbourhood. A short " time afterwards, the remaining squadron of the " corps of cavalry was sent, as a reinforcement, " from the great camp, in which the disease had " then got head. It carried the virus along with " it*; and actually lost several men after its junc-" tion with the forementioned detachment, which, " nevertheless, remained perfectly healthy through-" out†." Although I am aware it will be deemed supererogatory, I take the liberty of offering a few brief remarks on this passage:—Had the disease which prevailed in the great camp, in this instance, depended on a vitiated state of the atmosphere, the squadron would, in all probability, have outmarched the infected portion, and regained their usual health; on the other hand, if we suppose that the infected portion of the atmosphere, and squadron of cavalry proceeded *pari passu*, and arrived simultaneously in the camp of the detached force, according to the known laws of this, and all other epidemics, the squadron would now have remained comparatively exempt from its ravages, while the fresh unseasoned troops in camp would have suffered in a very aggravated degree. But let us call to mind what actually happened, and ascertain in how far it agrees with these conclusions. A squadron marched from an infected camp, and carried the virus along with it; it subsequently entered an uninfected camp, and actually lost several men afterwards, and yet, by a mere chance, it did not infect it. Could this have happened had the source of the evil resided in the atmosphere?

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* It will no doubt appear singular to many, that any one should write in this style, and still deny the contagious nature of the disease; to an unprejudiced person such language would appear to bear an admission to the contrary on the very face of it.

† Jamieson, p. 182.

It is likewise objected, that a regiment has been known to march through an infected country with impunity. Let us see if we find any thing similar to this in the history of any other infectious disorder. "From Sir Robert Wilson's account of the "diseases of Egypt, we learn that the English and "Turkish armies, which marched from Aboukir to "Cairo, escaped contagion, notwithstanding every "village on the route was infected*." The following extract, alas! will show that the inhabitants of the country have not always been so fortunate, when infected corps have marched through them†. The following extract of a letter from the collector of Bellary deserves to be noticed:—"It (Cholera,) "first made its appearance in the neighbourhood "of Gooty, where the 2nd Battalion 1st Regiment "Native Infantry, which had suffered severely "from this disease, halted for some time. It subse-"quently appeared in nearly every village on the

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* Thomas, 235.

† Scot, 48.

" route of the 15th Regt. Native Infantry, which " was severely attacked by the Cholera, as it passed through this district, and which halted at the " station till the disease disappeared; in some of " the larger villages, such as Dhurmaveram, it has " carried off nearly two thousand souls. Doubts " may be entertained of the contagious nature of " the disease; but it appears to me quite certain " that the infection has been communicated or created here by the two regiments before noticed. The " disease was unknown here till they arrived; it " broke out where the first diseased corps halted " for some days, and at nearly every village at which " the other stopped. It has been unknown in any " other part of the district; and though it was " unknown both in the 15th Regiment Native " Infantry, and in the villages through which it " passed, until they arrived in this district, it no " sooner broke out among that body of men on " the march, than it communicated itself to the " fixed residents, who were before exempt from it*."

Dr. Jamieson seems inclined to believe, that a corps or city, after having undergone a seasoning, enjoys, comparatively, a temporary immunity from its attacks, and I am inclined to think that there is some truth in the supposition. Dr. Jamieson expresses himself in the following terms:—" The " disease would sometimes take a complete circuit " round a village, and leaving it untouched pass " on, as it were wholly to depart from the district;

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* Madras Report, p. 48.

"then, after a lapse of weeks, or even months, it "would suddenly return, and scarcely re-appearing "in the parts which had already undergone its "ravages, would nearly depopulate the spot that "had so lately congratulated itself on its escape. "Sometimes, after running a long course on one "side of the Ganges, though with free intercourse "between both banks, it would, as if arrested by "some unknown agent, stop at once, and taking "a rapid sweep across the river, lay all waste "on the opposite bank." It would have been interesting and satisfactory to know, if there were no public ferries at those spots, where it took these rapid sweeps across the river? Perhaps not; and these were merely the frisks and gambols of the atmosphere; taking the fact, however, as we find it, in conjunction with that of the disease occasionally making a circuit, or *detour*, round a village in its course, will any one, let us ask, have the hardihood to assert that both facts can with greater probability, be attributed to a generally depraved state of the atmosphere, than to the irregular and fortuitous channels by which contagion must necessarily be extended?

The disease, it appears, would 'after a lapse of weeks, or even months, return, and scarcely appearing in the parts which had already undergone its ravages, would nearly depopulate the spot that had so lately congratulated itself on its escape.' Do we find any thing similar to this in the history of any disorder confessedly infectious? The following appears to me not altogether inapplicable:

—" After the mortality had subsided at Mogadore, " a corps of troops arrived at the city of Teradaunt, " in the province of Suse, where the plague had " been raging, and had subsided. These troops, " after remaining three days at Mogadore, were " attacked with the disease, and it raged exclu- " sively among them for about a month, though " they were not confined to any particular quarters; " many of them having had apartments in the " houses of the inhabitants of the town*.

In the history of Cholera, instances are not uncommon in which the disease has broken out in public schools, jails, and other large establishments, and immediately disappeared on the buildings thus occupied having been vacated, and their inmates removed to some other, though at the most trifling distance. It will scarcely be imagined, that these facts have been brought forward by the supporters of the non-contagious nature of the disease, in proof of their belief; with how much justice the reader is, by this time, I trust, able to judge for himself. That contagion will not alone explain the phenomena of Cholera Morbus, I am ready to admit; for we occasionally find, as in the instance of Lucknow, related by Mr. Jamieson†, that a few cases of contagious or sporadic origin occur prematurely, which being unsupported by epidemic influence, are rapidly extinguished. That pending this influence in a concentrated form, the disease may arise spontaneously, is far from improbable;

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* Good, p. 431.

† Bengal Report, p. 11.

and we know, that after it has ceased to exist, the disease often disappears as rapidly as it invaded the place.

The plague is subject to the same influence; for, at unfavorable seasons, its contagious powers are so feeble, as to be scarcely adequate to keep up the disease. In like manner, the virulence of the disease varies, being occasionally so formidable as to destroy within as short a time as Cholera; at other times, though retaining the glandular character, so mild as not to affect the general health; and finally, it sometimes runs through its course, to a successful termination, as rapidly as Cholera: "The soldier who is struck in the ranks with a " sudden shock, or m'drop, as the Arabians call it, " and is taken to the hospital on one day, has in " a few instances, by proper treatment, passed " through the febrile assault in three or four hours, " and resumed his station the day after*."

Having now mentioned, and in my opinion, replied to every objection which has been urged against the contagious nature of the disease, (how far, in a satisfactory manner, must be left to others to determine,) I proceed to offer some observations, which would appear to lead to a belief in that doctrine. I have already produced such powerful evidence, to prove that medical officers, and hospital attendants, are proportionally more than ordinary sufferers from the disease; that if the argument to be founded on that basis may not be adduced in favour of contagion, it surely, with any show of justice, cannot be brought forward in evidence against it. The testimony of all medical officers, who have written on the subject of the epidemic Cholera, coincides in the following leading points: That the disease infested cities and camps; that it broke out at public markets and at public ferries; and finally, that it spread along the great roads, or principal routes of communication. As it is not difficult to imagine, that in camps, cities, and grain markets, the air may be less pure than in other places, we shall place no great reliance on that part of the argument, as it may be adduced with a show of reason, either for or against the contagious nature of the disease; but how, on the principle of the air being the source of the evil, can we account for the disease breaking out at public ferries; and that it did so, we cannot indulge a doubt.—Vide Jamieson, p. 6, &c.

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* Good, 436.

The argument to be derived from the disease having been propagated along the great roads, is still more conclusive, and must, on due consideration, of itself, satisfy any unprejudiced mind of the contagious nature of the disease. What difference can we possibly imagine to exist between the air over a high road (those of central India are mere pathways) and that over the adjoining fields? We may suppose, that the traveller is over-heated and fatigued, and, in some measure, predisposed to the disease; and this may be true, in so far as regards himself: but will it account for the disease breaking out in the village in which he has halted for the night, or for a longer time? The idea is ridiculous; and this single fact (and it is acknowledged by all) appears to me so strong, that I cannot conceive how any person can resist the conviction, which it alone must carry to the mind, of the contagious nature of the disease. The following extract of a letter, from Dr. Kennedy, of the Bombay Establishment, is too full of interest, to be omitted in this place: "The epidemic Cholera has "travelled as often against, as with the course of, "the winds. In the very face of a strong south-"west wind, which blew in that direction for some "months, it passed from Bengal to the Deckan. It "has prevailed in every kind of weather common "to the climates affected; in the driest weather, and "during the deluge of periodical rains; in storms "and in calms; under the scorching sun of Arabia, "and amid the snows of Russia. Opposed as these "facts are to the usual progress of maladies, the "extension of which depend solely on the atmos-"phere, the character of the succeeding facts fa-"vours the existence, in a still greater degree, of "a contagious power:—"

"Epidemic Cholera has, in general, rigidly fol-"lowed the great highways of human intercourse: "pursuing the line of navigable waters, and the "route of caravans, it entered on, and traversed "the different countries. Through India, it extend-"ed along the rivers Ganges, Hoogly, Jumna, and "Nurbudda; Arabia, Persia, and Syria were pene-"trated by the Persian Gulf, the Tigris, and the "Euphrates; Moscow received the disease, by the

" route of the Volga; China, other parts of Eastern " Asia, and the various islands, were infected over " sea, as appears from the Cholera making its earliest ravages in the ports, towns, and maritime " districts. Agreeing with the disposition of contagious diseases, the Cholera has been most virulent, wherever human beings were numerous, and " concentrated in densely peopled cities; in armies " encamped or upon the march; in localities unfavourable to free ventilation, as low sheltered " grounds, narrow streets, close, dirty houses. The " slow rate of progression, at which the epidemic " advanced from place to place, in succession, and " the temporary halts, which it occasionally made, " perfectly agree with a contagious origin, but " they cannot be reconciled to an atmospheric. " It travels on an average, at a rate, varying from " ten to fifteen miles; but often, in particular " instances, much less. Within the zillah of Vellore, it proceeded thirty-two miles in twelve days, " and in the next twenty-seven days, eighty miles*."

We have seen in the above extract, that the disease was introduced into some of the islands over sea. The following account of its introduction into those of the Mauritius and Bourbon, from the pen of Sir Gilbert Blane, cannot fail to be deeply interesting to the reader.

" The disease made its appearance in the Isle of " France, on or about the 20th November, 1818. " The Topaze frigate, from Ceylon, where the

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* India Gazette, Dec. 16.

"disease was prevailing, and which actually prevailed in the frigate, three men having died on "the passage, arrived at the island on the 29th "of the preceding month. *Can there be a doubt "in the mind of any rational being*, that this "disease, never before known here, in an epidemic form, was imported by that vessel? Is "it conceivable, that the air of the continent of "India, or of Ceylon, could be wafted hither, at "the distance of three thousand miles; or that, "just at that point of time, the air of the island "itself became contaminated? After prevailing "for a few months, it vanished; for it is one of "the peculiarities of this disease, that after rapidly "selecting its victims, consisting of those who, by "some obscure predisposition, are alone susceptible of it, it disappears.

"From the circumstances of its appearance in "Bourbon, we are led to some still more important inferences. The Governor of that island, "under the strong conviction of its infectious "nature, took measures, by proclamation, to bar "all intercourse with the Isle of France; but in "spite of this, a boat from the shore of Bourbon, "had clandestine communication with a small "vessel from the Isle of France, probably about "the 8th or 9th of January; for they left Louis on "the 6th. After the usual interval, the disease "showed itself, so as to leave no doubt of an infection traceable to the boat, and spread to one of "the quarters of the town. The Governor, with "that vigilance and energy which were in his cha-

" racter, instantly adopted such measures of police
" by cordons of troops, and by conveying the sick
" to a lazaretto, that the progress of it was arrested,
" and it died away. In the Isle of France, on
" the contrary, where no such steps had been taken,
" the disease spread to the whole town, and to the
" rural population, to a calamitous degree*."

Did the disease depend entirely on the atmosphere for its origin, we might naturally expect, that it would prevail on board vessels, within Indian latitudes; and yet I am not aware of any instance in which the disease has broken out, and prevailed generally on board of a vessel direct from Europe, before she has had communication with the shore. That it may prevail on board vessels more destructively than on shore, after that intercourse has been established, the histories of the melancholy ravages committed by the disease on board the Hon'ble Company's ships Berwickshire and Abercrombie Robinson, alas! too amply demonstrate†.

Particular instances of the infectious nature of the disease, and of habits manifested by it, totally irreconcilable with the idea of the atmosphere being the sole source of mischief, are so numerous, that it would be useless to detail them; the following extract, however, of a letter on the subject, from a most intelligent medical officer, possesses a more than common interest:—" The epidemic made
" its approach directly against the wind, along the
" Gyah road; but instead of continuing its course

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* Kennedy, p. 261. † Soc's Trans. vol. 5.

" into Palamow, it appears to have divided into two " currents, one passing down the new road to the " eastward, and the other to the westward. An incident mentioned to me by the acting magistrate, " tells strongly in favor of contagion being at " least occasionally an exciting cause. Every " individual of a family having died of Cholera, the " cattle and other effects were sent to a village for " sale, in which no case had yet occurred; soon " after their arrival, the disease broke out in the " very house to which they were brought, and " thence spread to the whole village."

The summary of the Madras report on this subject is satisfactory as usual. " There are several instances recorded, where Cholera has been " first manifested at a place, in the attack of an " individual, who had come from some other place " where the disease existed. The first case of a European, which occurred at St. Thomas' Mount, was " that of a man who had left Madras on the morning of the 15th of October. Proceeding on his " journey towards Trichinopoly, in the evening he " was taken ill about a mile from the Mount, " brought back to the house, where he had passed " the day, and there died. On the 17th the wife of " that person, on the 19th the owner of the house, " and on the 21st his wife, all experienced attacks " of Cholera, but recovered; several of the native " servants also suffered.

" The instances of the disease appearing at " places immediately after the arrival of corps and " detachments, which were suffering from it, are

" very numerous. For example, it appeared at " Jaulnah, immediately after the junction of a party " from Nagpore, amongst whom it prevailed. It " appeared at Aurungabad and Mulligaum, in Kan- " deish, after the arrival of parties who had left " Jaulnah at the time the disease was prevalent " there, and amongst whom it had broken out on " the march to these places. It appeared a second " time at Mulligaum, after the junction of the 1st " Battalion 5th Regiment, in which Cholera prevail- " ed. It appeared at Secundrabad after the arri- " val of a detachment suffering from it ; and it ap- " peared afterwards in the villages through which " the detachment had moved. It appeared at Gooty, " where no case had been observed before, for six " months, immediately after the arrival of the first " Battalion 16th Regiment, in which it prevailed " with great mortality. It is remarkable, that the " same formidable type of the disease, which prevail- " ed in the marching corps, was communicated to " the corps at Gooty. It also spread, on that occa- " sion, to the adjacent villages. It appeared in a " detachment of artillery, previously perfectly heal- " thy, upon their encamping on the ground which " had been immediately before vacated by the 1st " Battalion 8th Regiment Native Infantry, in which " corps the disease prevailed; and the bodies of " several persons, who had died of Cholera, remain- " ed exposed on the ground, when it was taken up " by the artillery*."

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* Scot, p. 47.

My own experience does not enable me to offer any thing important on this branch of the inquiry. I have already stated, that of from twelve to fifteen native doctors who have been employed under me, three, if not more, have been attacked with the disease. While employed in Cachar, in 1825, I had an opportunity of witnessing a very destructive visitation of the epidemic Cholera. The disease advanced from Dacca to Sylhet, along the usual route of communication, (whether by land or water, or by both, I cannot now determine,) from thence into Cachar, along the line of the Berāk river, and continued its course, step by step, through the military cantonments on its banks, with a regularity which it would be difficult to account for, but on the principle of contagion. It likewise occurs to me, that I have, on more than one occasion, observed two or more men attacked in succession, who had taken up the berths in hospital, which had immediately before been occupied by Cholera patients; but this, it is but fair to say, is little more than conjectural.

After having made so free with the opinions of Dr. Jamieson, it is but justice to the memory of that accomplished man, to state, that he appears latterly to have entertained strong doubts, if the disease was not really of a contagious character; but he shall speak for himself. " If setting aside the circumstan-
" ces militating against it, we take it for granted, that
" the infection was truly received by the centre and
" Hansi divisions, from the detachments above-men-
" tioned, we must believe that the disorder, though

"not communicable by contact from person to person, was so from one large body to another large body, (query—how can infection be communicated from one large body to another large body, but by means of one or more individuals?) and that wherever the poison got head amongst a number of men, it assumed some new quality, so as when mixed with the atmosphere to become contagious; what constituted this additional quality, we cannot pretend to determine; but in support of its existence we may quote the predilection of the epidemic for cities and camps; the infection of the left division, and the Nagpore and Meerut troops, immediately after entering into the diseased medium at Jubbulpore, Nagpore, and Delhi; and the similar case of the troops and followers in attendance on the Governor General, being attacked shortly after communicating with an infected village, in the Goruckpore district. To the same account may be placed the progressive march of the disorder from one part of an infected place to another, as in the centre and Hansi divisions; and more particularly the Rajpootana force, in which the virus seemed to be regularly propagated from corps to corps. In some instances, the suffering body would appear to have sickened immediately on coming into the poisonous medium, as was the case with the Nagpore troops, who were infected on the very day, in which they encamped at the infected village of Gaongong. But more frequently one or two days would seem to have

" been requisite to bring the virus into action. " Thus the Meerut detachment entered Delhi on the " 29th, and was not affected till the 31st; thus, too, " the Hansi troops had not the disease till the " 6th, " the day after the junction of that detachment *."

It would be superfluous in me longer to protract the discussion of this subject; the reader has now had both sides of the argument fairly stated to him, to the best of my ability, and can judge for himself; for my own part, with every deference to the opinions of my professional brethren, I declare, in the words of Dr. Kennedy, that I know no character belonging to any contagious disease, which the epidemic Cholera did not manifest; and that if it was not contagious, I know no other disease which I would be inclined to consider so; and I cannot help regretting, that it should have been left to a person who never saw the disease, to find out its real nature, even although that person is Sir Gilbert Blane.

Taking it for granted, that the disease is contagious, it only remains for us to inquire, to what practical measures of precaution that admission would direct us. The usual measures of quarantine, cordons, sanitaire, &c. immediately suggest themselves to the mind, for the purpose of preventing the introduction of the disease from abroad, or of confining it within the narrowest limits possible, when it has actually broken out. In the latter case, the separation of the sick, the immediate

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* Jamieson, p. 144.

evacuation of infected buildings, aspersions with solutions of the chlorides, and the fumigation of chambers, apparel, and articles of furniture capable of harbouring the virus, with the nitric or muriatic acid gases or chlorine, ought to be rigidly enforced, and sedulously employed. The ingenious Mr. Hamilton Bell has remarked, that it is probable an opportune course of quinine would assist the system in warding off the attacks of Cholera Asphyxia, and I quite concur with him in opinion. The experiment is easy of execution, and is little likely to be attended either with inconvenient or injurious effects. In the fens and marshes of Italy, a mask of gauze is worn by the inhabitants, with great supposed advantage, as a preventive against the influence of malaria; and there seems no reason to conclude, that the same measure might not be beneficial generally, during the prevalence of Cholera, and to those in particular, whose duties it may be to administer to the wants of those actually infected. Frictions with oil over the whole body are considered almost a certain prophylactic against the infection of the plague. "It was considered," remarks Dr. Good, "the most sovereign thing on earth, in the last pestilent ravage at Malta*." Are not the same means worthy of a trial, as a measure of prevention in this disease? Mr. Baldwin informs us, that among upwards of a million of inhabitants carried off by the plague, in Upper and Lower Egypt, during the space of four years, he could not learn that a single oilman or dealer in oil had suffered*. It would be a subject of the greatest interest, nay, importance to inquire, (although I suspect there is little probability of obtaining satisfactory information on the point,) if those persons who pursue the profession of oil-merchants in this country, or who habitually use frictions with oil, have hitherto been more exempt from its ravages, than other classes similarly situated.

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* Good, ii. p. 439.

If the disease be really infectious, and I cannot help thinking that it is, and these measures of prevention, which have been found so beneficial against the influence of malaria, and infection in other pestilences, should prove equally powerful against that of Cholera, the number of lives which might be saved, and the degree of human suffering which might be averted, would be almost incalculable, and demands the serious attention of the Government, and of every one interested in the welfare of his species.

NOTE.—In other respects, the prophylaxis in Fever is the prophylaxis in Cholera; with this difference, that additional precaution is required, to guard against taking any thing into the stomach likely to prove offensive to the digestive organs, or to excite watery discharges from the bowels, *especially* saline purgatives.

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* Thomas, p. 241.

APPENDIX

TO

PART I.

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Reasons, founded on authentic facts in the History of Spasmodic Cholera, for Establishing a Specific Code of Sanitary Restrictions for that Disease, considered independently of Plague, Yellow Fever, and other Infectious Maladies.*

1. If the sole object of sanitary police were to protect communities, at all risks, from being infected by their neighbours, medical science need not be consulted; as an absolute cessation of intercourse with the suspected would be the only measure necessary.

2. But as such a measure would be nearly, if not altogether, impracticable, under the present circumstances of society, it is essential to endeavour to determine the point of time at which the danger of infection by any particular disease ceases, and consequently the period at which free intercourse may be resumed with those, who have been thought capable of communicating that disease to others.

3. When sanitary police was first established, Spasmodic Cholera was unknown, and medical science in Europe was but little advanced. The very

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* The above document, addressed by the Central Board of Health to the Privy Council, has been published by authority, in the Cholera Gazette.

word *quarantine*, and the forty days' restraint which it indicates, do not seem to have been derived from a well-authenticated knowledge of the individual sanitary histories of the diseases against which the restriction was first directed, and has since been kept up, partly from ill-defined apprehensions, and partly from reverence for old institutions. It must, however, be allowed, that a much longer separation from suspected persons is called for in diseases in which infective matter is proved to be generated, and thrown out upon the surface of the body, and upon the clothes, as in plague and small-pox, than where no such matter is generated.

4. Yet, it is certain, that even in these last diseases, the maximum of the period of incubation, or interval between the reception into the system, of the infective germ, and the manifestation of the symptoms, does not exceed one-third of the quarantine founded on the doctrines of Fracastorius, and the sanitary laws of the sixteenth century.

5. The utmost length of time during which the safety of the public health absolutely requires sanitary precautions as to persons, or effects, supposed capable of communicating the infective germs of any given disease, ought to be determined by what experience, in that disease, may have established on the following questions, viz.:—

First. What is the longest interval of time between the reception of the infective germ into the constitution, and the manifestation of the first symptoms of the disease?

Second. The period during which an individual may retain the power of infecting others with the disease from which he is himself convalescent.

Lastly. The capability of certain classes of merchandize, to retain, and afterwards to communicate, the germs of the malady.

6. Numerous and authentic data, tending to elucidate these three questions, as far as they regard Spasmodic Cholera, have been furnished by the extensive prevalence of that disease, since 1817, in our East India possessions ; by our commercial intercourse with Russia, Prussia, and other infected countries on the continent of Europe ; by the recent investigations of the medical commissioners sent to these countries from different governments ; and finally, by the laborious and accurate observations of the most enlightened physicians of the countries where the disease has prevailed, or is now prevailing.

First Question.—*Period of Incubation.*

7. The following are a few of the many facts which seem to settle this period with tolerable accuracy :

" The Subsidiary Force under Colonel Adams, which arrived in *perfect health* in the neighbourhood of a village in India, infected with Cholera, had 70 cases of the disease the night of the arrival, and 20 deaths the next day."

8. " His Majesty's 54th Regiment landed at Madras on the 10th of May, in a remarkably healthy

state, after a voyage of forty-eight days from the Cape of Good Hope, and marched into quarters in Fort St. George. Cholera appeared amongst the men within three days after their landing."

9. " In eighteen vessels, which arrived in England, between 26th May and 24th September, from infected ports in the Baltic (each vessel having had one or more cases of Cholera on the passage), the greater number of attacks took place previously to the *fourth*, and only one attack so late as the *sixth* day of sailing.

10. Dr. Becker, of Berlin, gives the subjoined statement in his Report:

"From August 29th to September 26th, there have been reported cases of Cholera in Berlin, 770.

" During that period, a second case has happened in the same house, where one case had been reported—

" After one day, 65 times; two days, 34; three days, 23; four days, 16; five days, 21; six days, 7; seven days, 3; eight days, 2: nine days, 0*."

11. The British Medical Commission lately returned from St. Petersburgh, after detailing a series of cases upon this point, concludes thus.

" That in the above cases, in all of which the time intervening between an only exposure to infection, and the subsequent development of the disease, was most accurately marked, the period of incubation ranged between one and five days."

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* It is very difficult to imagine any proof, more conclusive than this, of the contagious nature of Cholera Asphyxia, short of mathematical demonstration, and this approaches very near to it.—I. H.

12. The Genoese Medical Commission sent to Hungary and Vienna, to study the nature and history of Spasmodic Cholera, state in two distinct Reports to the Sardinian Government, their decided conviction, derived from protracted observation and personal experience in Cholera Quarantine Establishments, that those, who have absorbed the germs of the disease, are generally attacked before the *third*, and always before the *fourth* day.

13. The Board are aware, that accounts have emanated from respectable sources, of persons having been seized with Cholera, many days after their departure from infected places; but as the history of these individuals, during the interval between the supposed last exposure to infection, and their subsequent attack, does not appear to have been accurately noted, and as even these instances are very rare, the Board would not feel themselves justified in allowing their opinions to be influenced by such insulated statements.

14. It appears, then, with regard to the first question, to be clearly established, that the longest interval between a well-authenticated latest, or only, exposure to the infection of Spasmodic Cholera, and the subsequent manifestation of that disease in a susceptible person, has been *from five to six days.*

Second Question.—*Length of time during which persons convalescent from Cholera may retain the capability of infecting others.*

15. In a sanitary point of view, persons recovering from any disease cannot be contemplated independently of their clothes, bedding, and other susceptible personal effects.

Whenever persons unaffected themselves with Cholera, (whether convalescent or not,) have been conductors of the germs of the disease from the sick to the healthy, the latter have always been attacked within the period of incubation already specified.

16. The Genoese physicians already quoted, state that in the Cholera Quarantine Establishments, which they had such ample opportunities of observing, no one was ever attacked after the sixth day.

17. No ship has ever arrived in this country from India, since the first appearance of the disease there, nor within several thousand miles of our shores, with the disease or its germs on board, although 103,376 bales of cotton wool have been imported from that country, within the last three years.

18. No individual has ever been attacked on board ship south of the Baltic, on the passage home, nor in any of the Quarantine Establishments in England, since Cholera first broke out on the shores of that sea.

19. But as a single well-authenticated instance of Cholera having been communicated to a healthy

community, by persons recently recovered from the disease, or by their effects, would be enough to demand quarantine precaution to the amount, at least, of something above the longest interval between the recovery of the one, and the first appearance of the disease amongst the other party; and as there is reason to believe, that the first case of declared Cholera at the Mauritius, in 1819, did not occur before the 15th day from the arrival at that island, on the 29th October, of the "Topaze" frigate, and the landing of her sick, after having had several cases of Cholera on the voyage from Trincomalee, which place she quitted on the 9th of the same month*; and as the data which tend to determine the period indicated in the second, are by no means so numerous nor so precise, as those which bear upon the first and third questions; and, as the period must be considerably modified by the conditions under which the recovering or recovered person or persons are placed, with reference to cleanliness, ventilation, food, &c.; and as precaution naturally increases with undefined apprehension; the Board, until more precise facts on this question can be obtained, must consider persons ascertained to be but just convalescent from Cholera, as coming under the most aggravated circumstances of a foul bill of health.

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* See the journal of the Surgeon of the ship (Mr. Foy,) Medical Gazette, November 19, 1831, p. 226.

THIRD QUESTION.—*Capability of Merchandize to convey, and afterwards communicate, the infectious germ of Cholera.*

20. There is perhaps no question in the whole range of sanitary police, on which so many, and such irrefragable facts can be brought to bear as on this; derived, too, from the most authentic and recent sources.

Seven hundred and thirty ships, loaded with hemp and flax from infected parts of the Baltic, arrived at the different quarantine stations in this country, between the 1st of June and the 31st of December, 1831.

Many vessels also arrived laden with wool and hides, yet not a single case of Cholera occurred on board any of these ships outside the Cattegate Sea, nor amongst the people employed in opening, and airing their cargoes in the lazarets.

21. At the hemp and flax wharfs in St. Petersburgh, where several thousand tons of these articles arrived during the spring and summer of this year, from places in the interior, where Cholera existed at the time of their departure for the capital, the persons employed in bracking or sorting, and who generally passed the night among the bales, did not suffer so early in the season, nor so severely, as other classes of the general population.

The same observation holds good with respect to all the rope-walks of St. Petersburgh, and the imperial manufactory of linen cloth at Alexandrofsky, where all the yarn is spun from flax bracked and hackled on the spot.

22. Struck with the importance of the above, and other similar and authentic facts connected with the sanitary history of Cholera;

Holding in view also the unnecessary embarrassments to every kind of intercourse caused by the adoption of plague precautions against individuals, communities, and merchandize, affected with or suspected of Cholera only;

The strong inducements to elude sanitary restrictions furnished by their own severity;

The inefficiency of cordons by land, from the impossibility of their being made perfect, except by a system of coercion, entailing greater evils than the disease itself;

The panic, and other dangerous moral, as well as physical effects, caused by vexatious insulations of families and communities;—

Some of the most commercial nations of Europe, as well those still exempt from, as those already infected by, Spasmodic Cholera, have lately reduced, very considerably indeed, the quarantine restrictions which they had hitherto directed against that particular disease.

23. Lubeck, a territory perfectly exempt from Cholera, reduced its quarantine upon persons and merchandize arriving from infected ports, first from forty-one to twenty-one, and then to ten days.

24. A similar reduction has taken place at Copenhagen.

25. In Prussia, persons and merchandize from infected places are subjected to a detention of only five days.

26. The Board of Health at Genoa have modified their Quarantine Code, taking as the basis of their new arrangements, the maximum of the period of incubation of Cholera, as determined by their own medical commission already quoted.

27. Guided by what experience has already established as to the laws, which seem to regulate the propagation of Cholera, and having in view the enlightened decisions, which the sanitary authorities of other countries have come to on this subject, the Central Board of Health feel themselves justified in giving it as their opinion:—

1*st.* That the maximum of sanitary restriction, or quarantine of observation, for an individual in health, but suspected of carrying the infective germs of Spasmodic Cholera, as yet latent in his organization, need not exceed ten days.

2*nd.* That the period of separation from the healthy, of an individual ascertained to be but just convalescent from Cholera, need not exceed twenty days.

3*rd.* That ordinary diarrhœa, continuing one or more days, being often the first symptom of Cholera; persons arriving from infected places, labouring under even the mildest degree of purging, should not be admitted to free pratique before the eighth day, after perfect recovery from the same.

4*th.* That the clothes, bedding, effects, and sleeping places of all persons on board vessels from infected ports, ought to be opened, aired, and purified, during three days after their arrival, although the length of the voyage may have exceed-ed the period of quarantine adjudged in such cases to healthy ships and unsusceptible cargoes.

5*th*. That the longest period of detention for airing and purifying merchandize of the most susceptible class, and arriving under the most suspicious circumstances, need not exceed fifteen days, to be counted from the day on which the airing may *bonâ fide* have commenced.

Finally. The Board see no reason to believe that the above suggestions, directed against Spasmodic Cholera alone, require any modification in reference to climate.

(Signed by the Members of the Board.)

ON

CHOLERA ASPHYXIA.

PART II.

ON

THE PROXIMATE CAUSE

OF

CHOLERA ASPHYXIA.

To the Secretary of the Medical and Physical Society.

CALCUTTA, *March* 21*st*, 1832.

SIR,

I have for some time contemplated laying before the Medical Society a few observations on the proximate cause of Cholera Asphyxia. The following, labouring under the disadvantage which they confessedly do, of being almost entirely speculative, cannot, I am afraid, even claim the merit of being altogether, original; be that as it may, I do not consider them unworthy of the attention of the Society*, and present them accordingly for its consideration.

Before proceeding to unfold my own views of the nature of Cholera Asphyxia, it may be as well cursorily to mention the different opinions which have been given to the world by the principal writers on the subject. The idea that the symptoms of the disease depend on an inflammatory action in the intestinal canal, or indeed in any other part of the body, at a time when every artery, and even the heart itself have almost ceased to act, is now so generally abandoned, as totally inadequate to explain the phenomena of the disease, that I will probably be excused for declining to combat with the shadow.

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* This Essay was presented to the Medical and Physical Society of Calcutta, and read at their meeting held on the 7th April, 1832.

Mr. Hamilton Bell, of the Madras Establishment, in a most interesting little volume on the subject of this disease, has come to the conclusion, that the great ganglionic or sympathetic system of nerves is possessed of a power totally unconnected with cerebral influence, which it may retain after the brain and spinal marrow are removed, and which may cease to exist, while these retain the full exercise of their functions.

2nd. To this system he attributes the circulation and distribution of the blood, and it consequently has a most important share in regulating secretion, and in carrying on the involuntary functions: and

3rd. To the suspension of this power of the system is to be ascribed the disease, which has obtained the name of Cholera Asphyxia.

Mr. Orton, in a work replete with brilliant ingenuity, which he published several years ago, has laid down the following propositions:

1st. That the proximate cause of Cholera Morbus consists of a diminution of the energy of the nervous system.

2nd. That the deprivation of the nervous influence thus produced extends to all the functions, and immediately produces the phenomena of the disease.

His mode of explaining how this general diminution of nervous influence is produced, I gather from his work to be this ; that the nervous and electric fluids are the same, that the atmosphere always contains positive electricity in a free state, and that a portion of it is absorbed by the blood in the lungs, at the time that the other vital changes are being effected, and by means of it, distributed to the whole body.

I am not prepared to say, that these opinions are altogether erroneous ; they appear nevertheless to be open in some measure to the same objections as those of Mr. Bell. The assumption is unnecessary to the explanation of the phenomena of the disease, and if admitted, is inadequate to the purpose, as will be seen more particularly hereafter, when we come to consider at greater length the objections, which may be taken to each of these hypotheses.

It only remains for me to state my own opinions on the subject. Cholera, I conceive to be a disease depending on a certain state of disorder of the function of respiration : before however proceeding to explain my views more particularly, it may be as well briefly to capitulate the principal changes, which are supposed to be effected during that process.

That oxygen disappears, and is replaced by carbonic acid gas, has been known since the days of Lavoisier. Formerly it was supposed, that uniting with the carbon of the blood in the lungs, it was returned in the form of carbonic acid. This gas is known to contain its own bulk of oxygen, and it was accordingly inferred, that the volume of the latter, which disappears, is exactly equal to that of the carbonic acid which is evolved. In man, this is pretty near the truth; but in several of the inferior animals, the relative difference is very considerable; we are accordingly left to conclude, that the processes of absorbing and evolving these gases are essentially distinct*.

To modern research we are indebted for the important information, that the great body of the atmosphere consisting of nitrogen, which was formerly supposed to remain inactive, as it were, during respiration, is both absorbed and given off by the lungs; and that the relative proportions, in which these changes take place, are modified by the season of the year, if not by other circumstances. The experiments of Jurine and Abernethy have established the fact, that the skin is actively engaged, in co-operating with the lungs, in effecting certain changes in the blood; and to me it appears not unlikely, that the alimentary canal, and most of the other secreting organs, will be found to be similarly occupied.

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* That this is the case in many instances admits of demonstration; for certain animals may be confined, in an atmosphere of hydrogen, and still continue to give off carbonic acid gas from the lungs.

There can be little doubt, that the phenomena of animal heat are intimately connected with respiration. Blood in the course of coagulating parts with a portion of its latent caloric, and the capacity of arterial blood for that body, over venous, was formerly supposed to be nearly in the ratio of 13 to 8. It is true, this difference to its full extent has lately been denied by Dr. Davy; but whether the development of animal heat depend on that cause, on the formation of carbonic acid in the course of the circulation, or on nervous influence, as supposed by Mr. Brodie, it is still inseparably connected with this function.

That distinguished physiologist has asserted, that after having destroyed the connection between the respiratory organs and the sensorium, the process of respiration was carried on by artificial means, with the same results as in health; but that the body notwithstanding cooled as fast or faster, than it would otherwise have done. Others, however, have repeated the experiments of Brodie, without obtaining the same results; and indeed it is impossible to conceive, that respiration could be maintained as well by artificial as by natural means, or why, if it were, life should so rapidly become extinct, as it does in experiments of the kind.

The results reported by Mr. Brodie would lead us to infer, that the changes effected in the blood, during the process of arterialization, are entirely chemical, and partake in no degree of a vital character; and yet nature, who is seldom prodigal of her gifts, has provided the lungs with nerves, and rendered them in other respects extremely sensitive.

Mr. Brodie appears to have overlooked the important fact, that with the period of the day, the season of the year, the difference of climate, the prevailing passion of the mind, the temperament of the body, and the mode of regimen, the quantity of oxygen consumed varies, which to the best of my judgment, it could scarcely do, were the phenomena of arterialization entirely independent of nervous influence.

In apoplexy, the oppression on the brain is great, and nervous energy is consequently lessened or destroyed, respiration becomes uneasy, sometimes stertorous, the pulse weak and languid, and the extremities cold; if a vein be opened, the blood is found of a dark colour, and cannot be made to flow: experiment can alone determine, if during this state, oxygen continues to be consumed in its usual quantity or not; but reasoning *a priori*, I confess, I should not be inclined to expect it.

It is time, however, we should proceed to apply these doctrines to the explanation of the phenomena of the disease under consideration. The symptoms of Cholera are so well known to the members of the Society, that it would be an unprofitable occupation of their time, to detail them in this place: I proceed accordingly to explain, in what manner I conceive them to depend on a disordered state of the function of respiration. Let us suppose then, that the atmospheric air becomes noxious to the lungs, either from changes in its electrical or gaseous constitution, the delicate nervous tissue of that organ becomes impaired in its energies, oxygen ceases to be consumed in the quantities essential to life, and the blood is returned to the heart, for circulation through the body, imperfectly arterialized. But it may be asked; if there is any proof beyond mere conjecture, that this is actually the case; I answer that there is, if any reliance can be placed on the assertions of Dr. Davy, and they have never yet been contradicted. The observations of numbers may be considered to establish the fact, that the air expired in this disease is unusually cold, as if it proceeded from an inanimate body; and the last mentioned gentleman actually analyzed it, and found that it had not undergone the changes, which air respired by a healthy individual invariably does. It was less completely divested of its oxygen, and less impregnated with carbonic acid gas. In Cholera, therefore, whether that be the cause of the disease or not, there can be no hesitation in saying, that the function of respiration is disordered. It now remains to inquire, if on this principle, the phenomena of the disease can be adequately accounted for.

We have seen, that the blood is returned to the heart, for circulation through the body, imperfectly arterialized ; the first organ, which the heart supplies, is itself ; and the researches of Bichat have left us no longer in doubt, that the circulation of undecarbonised blood, through its coronary arteries, is destructive of its sensibility. Its two-fold action is affected accordingly ; the arterial column is propelled with diminished impetus on the left, while the great venous trunks remain unrelieved and congested on the right ; the extremities become cold in consequence, the features livid and contracted, respiration uneasy, and the patient tosses from side to side, in a state of ceaseless jactitation.

The brain and spinal chord suffer in their turn from the same cause, and head-ache, vertigo, *tinnitus aurium*, deafness, and *muscivolitantes* denote affection of the former ; while spasms of the muscles of the extremities indicate, that the latter has not escaped with impunity.

The nerves on the surface cease to be supplied with arterial blood, and become insensible to the strongest stimuli. To this cause perhaps may likewise be attributed the perverted feeling of extreme heat, in so much, that the patient cannot bear a single blanket, while the surface is actually icy cold. Whether this reduction of temperature may, with greater justice be attributed to the absence of arterial blood, the impaired nervous energy, or to the cessation of the respiratory function of the skin, I shall not pretend to offer an opinion.

The increased secretions of the skin and intestinal canal, (for I have been informed, that not a trace of the serum of the blood can be detected in them,) while the other secreting organs are apparently struck torpid, I confess myself unable to explain. Whether they ought to be ascribed to the chemical quality of the blood, to the nerves presiding over the functions in question, or whether they ought to be considered as attempts of nature vicariously to assist the respiratory organs, in the decarbonising process, seems difficult, in the present state of our knowledge, even to guess.

In the course of the disease, the sensorium, which was at first clear and unclouded, becomes obscured and oppressed, and respiration slow, labouring, and stertorous. In some instances, this would appear to depend on an apoplectic state of the sensorium, and in others on congestion of the great blood vessels about the heart, terminating in infarcation of the lungs, which may have a fatal issue, even after re-action has been established, if not combated by timely and appropriate measures.

There is another sequela of Cholera, which I have repeatedly witnessed; although it has not been much taken notice of by writers on the disease. The patient recovers from the immediate attack, but no sooner does re-action take place, than he becomes comatose and apoplectic ; in short he is poisoned by the circulation of undecarbonised blood, through the substance of the brain. The following passage, from Dr. Paris's account of the suffocation by drowning, is so completely in point, that I cannot resist the temptation of quoting it*. "If however the animal be taken out of the water "before the total extinction of life, and the "diaphragm contract afterwards, so as to draw "air into the lungs, before the action of the heart "has ceased, the circulation is maintained, and the "animal continues to respire; he will thus have "escaped immediate death from suffocation; but "his life still remains in jeopardy, for there is a second period of danger, and one at which death "may take place, when we are least prepared "to expect it; for the dark coloured blood, which "has been transmitted through the circulatory system, during the suspension of respiration, would "seem to act like a narcotic poison on the brain; "no sooner therefore does it enter that organ, but "deleterious effects are produced, the animal at "first falls into a state of stupor, the pupils of the "eyes become dilated, the respiration laborious, "the muscles of the body convulsed, and the animal "dies *poisoned by its own blood.*"

Having now seen, that the phenomena of Cholera are to a certain extent capable of explanation, on the hypothesis of a disordered state of the function of respiration, let us inquire, if collateral circumstances would seem to countenance the idea. That it does not consist of an organic permanent affection, of the nature of inflammation, there seems every reason to conclude, from the rapidity of its progress, either to a fatal or a fortunate termination; it can only therefore be a disorder of a function, and that, that of respiration is deranged, we have the positive test of experiment. It is likewise greatly against the supposition of its being of an inflammatory nature, that physicians, employing the most opposite modes of treatment, have been successful, as well as by a combination of means, apparently the most contradictory:—I say apparently contradictory, because in reality they are not so; by depletion with the lancet, the column of blood to be circulated is adapted to the impaired energies of the heart, while by the exhibition of stimulants, the sensibility of the nervous system is heightened, and the circulation of the blood quickened, by which means, it is more frequently exposed to the action of the atmospheric air, in its passage through the lungs; but I shall recur to this subject hereafter.

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* Vol. ii. p. 37.

The persons most liable to be attacked with Cholera are those, who subsist on a poor scanty diet, or who are under the influence of fear, grief, or any of the other depressing passions; and these circumstances we know are adverse to the absorption of oxygen, during the process of respiration; while a generous diet, tranquillity of mind, and a moderate use of wine, are alike favorable to its consumption, and to immunity from attacks of this disease.

Mr. Spalding found, that when he lived on animal food, he consumed the oxygen of his diving bell more rapidly, than when he confined himself to a vegetable diet; and it is a fact still more singular, that the Brahmin, who instructs the divers employed in the Pearl Fishery at Ceylon, inculcates a rigid adherence to the same regimen.

Though it cannot be denied, that Cholera has prevailed at all seasons, and during every sort of weather, are there not certain times, let us inquire, at which it is apt to prevail sporadically? I am of opinion, that there are; and this I know for certain, that at, and around Gyah, where I was stationed for some years, it is regularly expected every hot season. Now chemical research has satisfactorily proved, that under circumstances in which animal heat is little required, the consumption of oxygen is comparatively small. Are there not periods likewise, during which the body consumes this essential to life, in smaller quantities, than at others? Yes, at night—and during that period accordingly do we find, that the proportion of seizures is comparatively great.

Let us now proceed to inquire, if there is no other disease, to which in its phenomena it bears any resemblance. To me and to many others, there appears to exist a striking analogy between it and fever, both in its intermittent and congestive types. The following case, which occurred several years ago, may not be devoid of interest, nor is it foreign to the subject. I was called suddenly to visit an officer well known on this establishment. I found him wrapt up in blankets, pacing his apartment in a state of agitation, his features were livid and contracted, he was shivering, and complained of excruciating pain at the pit of his stomach. I prescribed an opiate, and directed him to be put to bed; the medicine however he vomited, and was soon after called to stool, and to the best of my recollection, the matter evacuated both ways was of a watery consistence. His family were greatly alarmed, that the attack was one of Cholera, till in a short time re-action took place, and was followed by a paroxysm of Fever. Dr. Kennedy informs us, that the first case of the disease which he witnessed, he mistook for one of Intermittent Fever. I have annexed an interesting case of Congestive Fever, in which the secretion of the bile was suppressed, and the digestive power of the alimentary canal completely suspended, to show that between that type of Fever and Cholera, there is likewise a considerable resemblance. When the cold fit in the former, or collapse in the latter, proves fatal, the similarity is still more striking.

In this country the analogy between Fever and Cholera appears less remarkable, on account of the latter being followed, by a stage of re-action comparatively ill marked; but in Russia, this has been far from being the case, as the following extract from the Report of Drs. Barry and Russell will show*. " After the blue cold period has lasted "from twelve to twenty-four, seldom to forty-"eight hours or upwards, the pulse and external "heat begin gradually to return; head-ache is "complained of, with noise in the ears; the

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* Lancet, Sept. 3rd.

" tongue becomes more loaded, redder at the tip
" and edges, and also drier. High-coloured urine
" is passed with pain, and in small quantities ; the
" pupil is often dilated, soreness is felt on pressure
" over the liver, stomach, and belly ; bleeding by
" the lancet or leeches is required : ice to the
" head gives great relief ; in short, the patient is
" now labouring under a continued Fever, not to be
" distinguished from ordinary Fever : a profuse
" critical perspiration may come on, from the se-
" cond or third day, and leave the sufferer con-
" valescent ; but much more frequently the quickness
" of pulse and heat of skin continue : the tongue
" becomes brown and parched ; the eyes are suffused
" and drowsy ; there is a dull flush, with stupor and
" heaviness, about the countenance, much resem-
" bling typhus ; dark sordes collect about the lips
" and teeth ; sometimes the patient is pale, squalid,
" and low, with the pulse and heat below natural,
" but with the typhus stupor, delirium supervenes,
" and death takes place from the fourth to the
" eighth day, and even later, in the very individual,
" whom the most assiduous attention had barely
" saved in the first or cold stage. To give a no-
" tion of the importance and danger of Cholera
" Fever, a most intelligent physician, Dr. Reimer
" of the Merchant Hospital, informs us, that of the
" twenty cases under his own eye, who fell victims
" to the disease, seven died in the cold stage, and
" thirteen in the Consecutive Fever. This singular
" malady is only cognizable with certainty, during
" its blue or cold period : after re-action has been

"established, it cannot be distinguished from an "ordinary continued Fever, except by the shortness "and fatality of its course. The greenish or dark "and highly bilious discharges produced in the "hot stage, are not sufficiently diagnostic; and it "is curious, that the persons employed about these "typhoid cases, when they are attacked, are never "seized with ordinary Fever, but with genuine cold "blue Cholera; nothing therefore is more certain, "than that persons may come to the coast of "England, apparently labouring under common "feverish indisposition, who really and truly are "suffering under Cholera in the second stage." We see then, that in Russia, Cholera cannot be distinguished from continued Fever; and in this country, the Cholera Biliosa, which is undoubtedly but a milder variety of the Cholera Asphyxia, is merely a species of Bilious Fever. In instituting a comparison of the sort, we ought likewise to bear in mind, how much the intermittent, the remittent, the typhus, and the yellow Fever, differ from each other; and yet, that they are in essence the same, depending merely on external circumstances, for the modifications which they assume, few will be inclined to doubt.

Fever, like Cholera, appears to be merely a disorder of function: it not unfrequently runs through its stages, and totally disappears within a few hours*, which it could scarcely do, did it depend upon a cause of a more permanent nature. Instances are likewise not wanting, in which it has proceeded almost as rapidly to a fatal termination. Both diseases commence generally with a stage of depression, for there are exceptions in both instances; both may be said to be followed by a state of excitement or re-action; and both terminate in throwing off dark offensive discharges, by which nature would appear to endeavour to rid herself of the remaining excess of carbon in the blood.

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* The temporary attack at the changes of the moon, and the more protracted remittent fever, are no doubt essentially the same disease.

The idea has been prevalent among physicians, since the days of Hippocrates, that Fever is a salutary effort of nature to throw off something offensive from the system; and to the present day, the peasantry consider a dark colour of the blood as indicative of approaching disease : and to me it appears not improbable, that there may be some foundation for the opinions or prejudices of both.

The exhalation from the skin in fever is peculiar, and that in Cholera is so remarkable, that it has been taken notice of by every person, who has written on the disease; but let us see what Dr. Southwood Smith says on the subject : "Scarcely is the "most ancient doctrine regarding it, of which we "have any record, that it consists of a morbid "derangement of the fluids, and that the excite- "ment which attends it, is the result of an effort "of nature to expel the poison received into or "generated within the system, obliterated from "the imaginations, or vanished from the reasonings "of physicians. When indeed we see the patient

" in the latter stage of some of the forms of fever, " with his dark or leaden skin, pouring forth its " peculiar and fetid exhalation, with his foul " tongue, his offensive breath, his vitiated and almost putrid secretions and excretions, we can " understand, why this doctrine should have taken " a firm hold of the human mind, and should have " been able to maintain its ground, through so " many centuries."

This great writer re-capitulates his opinion of the proximate cause of Fever in the following words. " In conclusion then, the doctrine of " Fever, which appears to approximate most nearly " to the truth, may be summed up in a few words. " *The immediate cause of fever is a poison, which* " *operates primarily and specifically upon the* " *brain and the spinal chord.* The diseased state " into which these organs are brought, by the operation of this poison, deprives them of the power of " communicating to the system that supply of stimulus, (nervous and sensorial influence,) which " is requisite to maintain the functions of the economy in the state of health. The organs, the seats " of the functions, deprived of their supply of nervous influence, become deranged, the derangement in each taking place in a fixed order, and " in a determinate manner: subsequently to the " nervous and the sensorial, the organs next to suffer are those of the circulation; then those of " respiration, and ultimately those which belong " to secretion and excretion:—the condition of " the nervous system, which produces this derange-

"ment in this circle of organs, occasions farther, "in that portion of the circulating system, which "consists of the capillary blood-vessels, that peculiar state which constitutes inflammation: hence "inflammation is almost always established in one "or more of the organs comprehended in the febrile "circle, and sometimes in all of them. The peculiar and primary affection of the nervous system, "which is here assigned as the causeof inflammation, "does not become identical with inflammation, but "superadds the morbid condition of inflammation to "its own;—does not lapse into, or terminate in the "inflammatory state, but accompanies it, and by "this combination modifies in a peculiar manner "the inflammatory process." We see then, that Dr. Smith attributes the immediate cause of Fever to a poison, which operates primarily and specifically upon the brain, and the spinal chord. It is unfortunate, that he did not at the same time inform us, where this poison resides, or how it is generated, and after it is generated, how it finds access to the brain and the spinal chord, to produce all this manner of mischief; Dr. Smith, however, very justly proceeds to say; "The great practical "conclusion to be deduced from this doctrine of "Fever is, that while the inflammatory processes, "that are thus set up in so many important organs, "greatly aggravate the severity of the disease, "and ought to be constantly kept in the view of "the practitioner, both on account of their own "peculiar danger, and also, because, perhaps they "are the only real states, over which he has any "control, yet that these inflammatory processes do "not alone constitute Fever; that their removal, "though essential to the cure, will not complete "the cure; that another, a primary and a most "formidable disease, is at the same time to be con"tended with; and that the presence of this distinct "and primary disease requires very important "modifications in the treatment of the inflamma"tory condition."

The various local inflammations, which Dr. Smith has pointed out as following in the train of Fever, likewise await the sufferer from Cholera, should he be fortunate enough to reach the stage of re-action. The venous system has been gorged with blood, of which it cannot rid itself; re-action takes place; inflammation of the viscus follows which may have suffered most, or been least able to bear it.

The observation, that these local inflammations constitute no part of the essence of the original disease, is no less valuable, and would appear to be most easily explicable on the supposition, that in Fever the balance of the circulation between the arterial and venous systems is broken, while in local inflammations, the balance of the arterial circulation is only broken with relation to itself.

The causes of Fever and the causes of Cholera are the same, malaria and contagion; those most liable to be affected are the same, viz. those who have eaten substances offensive to the digestive organs, those who are under the influence of the predisposing causes, or those who have been exposed to the influence of the exciting ones; the best preventives are the same, viz. adequate clothing, tranquillity of mind, generous diet, and a moderate use of wine; and I am almost tempted to conclude, that the diseases themselves are similar in their essences, if not the same.—It now only remains to offer a few concluding observations. Were the essence of Cholera an inflammation of the mucous coat of the stomach or intestines, there seems to be no reason, why congestion of the venous system should take place, respiration become stertorous, oxygen cease to be consumed, and the blood refuse to flow. On the contrary, in every inflammation with which I am acquainted, the blood flows readily, is of a florid color, and inclined to assume the buffy coat on cooling, all of which are in direct contradiction to what takes place in Cholera. Were the essence of Cholera an inflammation of the intestinal tube, of such severity as to destroy life, we should at least expect, in every instance, to find unequivocal marks of it; and yet Dr. Jamieson informs us, that in many instances, the intestines, instead of being found inflamed, have been observed to have a bloodless or blanched appearance; and although it is unlikely, it is not impossible, *that traces of venous congestion have occasionally been mistaken for those of arterial turgescence.* I would have said less on this subject, were it not one of vital importance, essentially affecting the line of practice to be pursued; and there are too many excellent practitioners, who think highly of the use of stimulants, to allow the practice to be put down by an opinion, which does not appear to me, to say the least of it, to be even probable*. The theories of Bell and Kennedy are

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* The following account of the appearances on dissection, observable in this disease, from the pen of Sir Henry Halford, may probably be allowed to be of some weight in this matter.

"The appearances after death varied much in different individuals, and apparently according to the duration of the disease. In those who died within eight or ten hours, the stomach was generally found in a relaxed, dilated state, loaded with the same fluids as had been thrown up during life. Sometimes containing food, which had been swallowed and not returned, although the vomiting had been excessive. The internal and peritoneal coats of the stomach were, in these instances, pale and bloodless; the small and great intestines bore the same appearance; the arch of the colon, when the spasms had reached the abdomen before death, and sometimes the sigmoid flexure of it, were so contracted as to be less in diameter than the duodenum. The former was most commonly observed, the latter only occasionally. No appearance of bile or fæces was found in the intestines. The bladder was generally empty—the liver and vessels, which pass to the vena cava inferior, were turgid with blood; this turgescence extended to the vena cava superior, to the right side of the heart, and in some instances to the left ventricle: blood was in the same manner stagnant in the lungs, marking a congestion in the whole venous circulation of the larger vessels; the blood in the vessels was unusually black, resembling tar in colour and consistence. It is worthy of remark, that this local accumulation of blood was uniformly found in all fatal cases, whether they were of rapid or slower termination, and was particularly evident, as might be expected, in those in which the oppression of the breathing had prevailed with most violence. The gall-bladder was turgid with bile; the gall-duct commonly pervious, but bearing no marks of bile having recently passed. In cases of longer duration, the same leading appearances were open to similar objections, and neither of these gentlemen have condescended to inform us, in what manner the organs, which they conceive to be primarily affected, are acted on by the atmospheric air, in which it will probably be admitted, that the primary cause is to be sought for.

Mr. Orton's opinions are entitled to a more critical examination. He is of opinion, that in the atmosphere there is a portion of electricity, which is absorbed by the blood during the process of arterialization; that to its presence we are indebted for the phenomena of animal heat, and finally, that to its absence or diminution, we owe the disease of Cholera Morbus. It is unfortunate, however, for this supposition, that while one person is attacked with Cholera, another apparently under

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observed, but often with great addition. The vessels of the stomach, in these instances, were found loaded with blood, presenting a surface sometimes of a pale pink hue, sometimes of a deep blue, at others of so dark a tint as to resemble sphacelus of the membrane, from which it could only be distinguished by the firmness of texture, and the appearance of vascular congestion on holding up the stomach between the eye and the light; in other instances, the arteries of the stomach presented the appearance of having been penetrated by a vermilion injection; the same was observed in the smaller intestines; very rarely in the larger. In those cases in which coma had existed, serum was found effused, sometimes between the membranes of the brain, sometimes into the ventricles, and in some there was merely congestion of the blood in the vessels. Those who died of the subsequent illness showed no appearances after death different from such as are usually observed in other cases of febrile disease attended with corresponding symptoms."

the same circumstances escapes with impunity. Perhaps it may be considered but fair to allow this gentleman to speak for himself. " There is " however one pre-requisite, which is necessarily " supposed to attend the attacks of the epidemic, " and if it is proved to be absent, in a single in- " stance of a general attack, the theory must fall to " the ground; that is, a deficiency of electricity " in the air, which is actually breathed. This can " be clearly ascertained only from accurate experi- " ments, with electrometers, previous to, and during " the attacks." And shortly after he goes on to say, " The deficiency of the electric fluid in the atmos- " phere produces a correspondent deficiency of " that principle in the arterial blood, whence the " nervous system is rendered incapable of separat- " ing and supplying a sufficient quantity of the " ' neuro-electric fluid' to the wants of the animal " economy; and that state, which has been termed " diminution of nervous energy, with its infinite " series of effects, is produced*." To the best of my knowledge, Cholera has occurred under every possible modification of season and climate; in addition to this objection, there does not appear to be any valid reason given, why a deficiency of the electrical fluid in the atmosphere should prevent blood from being duly arterialized; besides which, did the disease depend on a diminution of that fluid in the atmosphere, the patient could scarcely be expected to recover so long as that state remained.

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* Orton on Cholera, page 408.

In short, whatever Mr. Brodie or Mr. Orton may say to the contrary, I cannot help thinking, that the phenomena of animal heat are intimately connected with the consumption of oxygen. We stimulate with wine or with animal food, and the quantity of oxygen consumed is increased, and the animal temperature raised. We run or we take exercise, so as to expose the blood, in passing through the lungs, more frequently to the atmospheric air, and the same result follows; and this too, notwihstanding any state of electricity, in which the atmosphere may be. In short, Mr. Orton has favored us with what he considers to be the exciting cause of the disease; but he has omitted to inform us, in what way the depressing passions or poverty of living predispose to its operation; how the effects, which he attributes to electricity, continue to be produced in healthy individuals, while hundreds are dying around, as he says, from its want.

Let us on the contrary take it for granted, that the electrical constitution of the atmosphere modifies the proportions in which its elements combine*, and that a portion of one of them, detrimental to life, is thus set free; or that the exhalations from the earth possess similarly deleterious properties; that respiration is not a merely chemical process, but partakes of a vital character; that the nerves presiding over that function are blighted, as it were, or their energies impaired by contact with its poisonous atmosphere*, and that the changes in the blood, essential to life, cease to be performed in a manner adequate to the preservation of health, and the whole difficulty appears to me to vanish.

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* I am aware, that it is still a disputed point, if the elements of the atmosphere are in a state of chemical union or merely of mechanical admixture.

Other reasons occur to me for thinking, that the cause of this disease ought to be attributed more to the gaseous than to the electrical constitution of the atmosphere. It is most prevalent and destructive, where numbers are obliged to breathe the same atmosphere, and in low situations most favorable to the extrication of malaria; it is comparatively unknown in mountainous regions, and I believe almost entirely so at sea, where no communication has been established with an infected port.

I am aware, it may be objected to these opinions, that no variation in the gaseous constitution of the atmosphere has been detected, in the most dissimilar situations. Of that I am informed, but allowance ought to be made for the imperfection of our instruments; and we ought not to forget, how small a change must be adequate to derange the health, when atmospheric air, breathed till it is capable of instantly destroying life, is found to contain no more than 10 per cent. of carbonic acid.

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* It ought to be recollected as an example, that animal or vegetables exposed to a degree of cold, capable of destroying life, do not perish indiscriminately, but in proportion to their susceptibility of its action.

It would appear to be but a narrow view of the decarbonizing function which would confine it to the lungs. The skin no doubt co-operates in the process, and not unlikely, the alimentary canal and the other organs of secretion. Under this view of the subject, we can be little at a loss to conceive how the nerves of one of these organs may sympathise with those of another; and still less, how an impediment to the extrication of the carbon of the blood by the one, may prevent the absorption of oxygen by the other. In the vegetable kingdom, at least, we know for certain, that without a supply of carbonic acid gas, oxygen ceases to be evolved; and there does not appear *a priori* to be any reason to conclude, that the same inversely may not hold good in the animal creation. If these principles be correct, the *modus operandi* of noxious and indigestible substances in producing disorder of the organs of digestion and consequent disease, or of frictions with oil in preventing infection, is easily explicable; and the spasm of the extreme vessels of the venerable Cullen ceases to be a mere inexplicable dogma. The process, which we may suppose to take place during the progress towards recovery in this disease, is likewise worthy of remark, and would appear to corroborate the hypothesis I have advanced.

We may suppose, either that the functions of secretion are restored, and that the carbon, thus given off by the blood, demands an increased consumption of oxygen by the lungs; or what is a great deal more likely, that the power of the respiratory nerves is partially restored, oxygen begins to be taken up in increased quantities*, the blood becomes better arterialized, the coronary arteries convey it to the heart, the sensibility of which begins to revive, and in consequence, the arterial circulation is strengthened, on the one hand, and venous congestion relieved on the other; while the secretions, which had been suspended, on account of the undecarbonized quality of the blood, begin to be restored, and those which had their origin in a morbid condition of that fluid, gradually disappear, as it returns to a more natural condition.

To conclude, if the assertions of Dr. Davy be true, that in Cholera Morbus the function of respiration is disordered, I conceive, that on that principle the whole of the phenomena of the disease, which have yet been unaccounted for, can be satisfactorily explained; and that between Cholera and Fever the analogy is so striking, that I anxiously desire to see the state of the functions of the lungs and of the skin, in both diseases, in every type and stage, accurately ascertained by chemical research.

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* When re-action has fairly taken place, perhaps in quantities greater than natural

APPENDIX

TO

PART II.

APPENDIX

TO

PART II.

Interesting Case of Congestive Fever.

Lieutenant———, Æt. 23, of a full habit; —Regiment Native Infantry.

October 7th, 1831. 1*st day of disease,* 12 M.—Called to Lieut.———, found him laboring under strong febrile symptoms: says he was quite well yesterday, but on rising this morning felt very cold, and had a fit of shivering, in which he vomited, and felt inclined to continue on the stool, his bowels being very loose; since the morning, his skin has become warm, and his thirst great. Pulse now 120, weak; tongue white; bowels open; stools watery.

V. S. ad lb.i.
Sumat Calomel. gr. x. in pil. ii.

6 P. M.—Pulse 120, weak. T. white; B. open; stools watery, without admixture of bile.

R. Cal. gr. x.
Opii gr. ii. M.
Fiant pil. ii. h. s. sumend.

8*th Instant.*—Slept well. P. 80, strong; T. white; but moist. B. open once: stool unchanged; skin cool.

Sumat pil. Cal. ii. ā gr. v.
ter indies.

12 M.;—P. 80; tongue, bowels, and appearance of stools as in the morning.

6 P. M.—P. 80—no change since the visit at noon.

9th Instant.—P. 84, strong; T. white, and excited; B. open.—Skin cool; has had no sleep; vomiting commenced last night at 9 P. M., and has distressed him throughout the night. Sickness still continues.

> Contr. pil. Cal. *c* Opio
> ter indies.

12 M.—P. 112, weak, and labouring; B. not open; skin warm; much thirst; great restlessness; T. moist, but white; eyes red and inflamed; complains much of feeling faint.

> V. S. ad. lb. i.
> Sumat pil. olim præscriptas.

Rejected the pills this morning.

6 P. M.—P. 120, weak; skin cooler now, than at noon, but still warm; B. open, but no bile in the stools.

> Descendat in baln. tepidum et
> Sumat Cal. gr. xx.
> Opii gr. ii. in pil. ii.
> hora somni.

10th Instant, 4th of disease, 6 A. M.—No sleep, but passed a quiet night; P. 84, strong; B. bound; T. white, and excited; skin very cool; perspired for six hours after coming out of the bath.

Sumat Ol. Ricini ℥ iss. statim et
Injr. Enema commune post horam si non respt. alvus,
Contr. Cal. *c* Opio.

12 M.—P. 104, weak; T. white; B. open once, by the assistance of the injection. Stool slimy, without bile, containing the calomel pills unchanged and unbroken; sickness has returned. Breath decidedly impregnated with the mercurial fætor.

R. Cal. gr. x.
Extr. Colocynth C. gr. x. M.
Fiant pil. iv. sumend. statim.
Applic. Emplast. Meloes Vesic. amplum dextro hypochondrio.
Infricr. Ung. Hydrarg. *c.* Camphora in brachiis.

6 P. M.—P. 84, distinct; skin cool; B. not open; feels better; sickness gone off.

Submer. Membra inferiora in Baln. tepidum, et St. h. s. Pil. Cal. *c.* Opio, ut heri.

11*th Instant,* 5*th of disease,* 6 A. M.—No sleep; constant vomiting since 8 P. M.; much restlessness; unable to retain the pills on his stomach last night.

Injr. Enema commune statim.

P. 108, T. white and very excited. Feels extremely faint; blister rose well.

Curetur pars vesicata Ung. Hydrarg. *c* Camphora.
Sumat pil. Cal. *c.* Opio. ii.
Omni tert. hora.

12 M.—P. 132, very indistinct, and weak; T. as in the morning; B. only open once by the injection; skin warm; head feels hot; much thirst; vomiting still excited by taking any thing into the stomach; stools slightly tinged with bile.

4 P. M.—Vomiting somewhat abated; took some Soda Water, which remained on his stomach. P. 120, weak; T. as before; B. not moved since noon. Skin warm, head hot, face flushed; is extremely anxious to change his quarters. Let his wish be complied with.

Sumat pil. Calomel c. Colocynth. iv.

8 P. M.—Has been removed from his own bungalow to that of Captain———; bore the removal well. Took four pills of calomel and colocynth, which he retained in his stomach; skin and head now cool; P. 96; T. moist; thirst less.

Descendat in baln. tepid.
Contr. Ungt. Hydrargyri, et
Habeat pil. Cal. c Opio, h. s.

12*th Instant*, 6*th of disease*, 6 A. M.—Passed a quiet night; dozed much; P. 84; T. white and coated; skin cool; head cool; no vomiting; B. not moved.

Habt. Ol. Ricini ℥ iss. et
Injr. Enema commune postea.

7. A. M.—One stool from injection, bilious.

Sumat pil. c Calomel. gr. iv. S. Quininæ gr. ii.
Omni bihora.

10 A. M.—Bowels not moved by the oil.

Repr. Enema et postea sumr. pil. mane præscriptæ.

1 P M.—Taken but two pills, but retained them; P. 96; T. as before; B. well acted on by injection; stool dark-coloured and fluid, no slime in it.

St. pil. ii. statim.

4 P. M.—Pills taken at one, retained; the two taken at three, excited vomiting: matter vomited up bilious; P. varies from 96 to 84; head rather warm; no headache; skin very cool; T. rather dry and covered with a thick fur. Lies very easy.

6 P. M.—P. 104; B. moved thrice; T. foul; stools green, with small bits of slime intermixed with the fæces.

Omittr. pil.

8 P. M.—Fainted while at stool; feels extremely weak. Skin very cold, especially on the extremities; P. 120, weak; T. dry. Thirst urgent; no vomiting. Thinks he can retain pills.

St. pil. Cal. c. Colocynth. iv.

13*th Instant,* 7*th of disease,* 6 A. M.—Passed a restless night; felt extremely weak; fainted on attempting to get out of bed. Retained his pills last night; P. 100, weak. T. foul; B. open, two or three times; skin cool; stools green and composed of stuff like chopped spinage; still feels weak; expressed a desire for tea.

Contr. pil. Cal. *c* Quininæ Sulphat.

½ past 12 P. M.—P. varies much, counted 112, 108, and 104, during the minute. T. foul and dry; B. open once, since 6 A. M. Stool the same in appearance. Skin cool. Head warm; Thirst continues; complains much of the pain from the blistered surface; cannot retain Castor Oil, he is sure.

Injr. Enema purgans.

Has taken two Calomel and Quinine pills every two hours, in all six pills.

Omittr. pilul.

Curetur pars vesicata ung° Simplice.

5 P. M.—Fever decreasing; P. 100; T. moist; Thirst less; B. open once, stool watery without bile. Heat of head and surface less.

St. Cal. gr. xx. et
Opii gr. ii. h. s.

14*th Instant*, 8*th of disease*, 6 A. M.—Passed a quiet night. P. 96. T. dry and furred. B. not moved; skin a little warm; complains much of blistered surface.

Habt. Ol. Ricini ℥ iss. et
Injr. Enema purgans.

8 A. M.—P. 90; falls occasionally to 84. T. moist. B. open once by injection; stool copious and of

dark-colored bile, no particles of slime in it. Feels very much exhausted since the injection operated; hands and feet cold. Says he feels inclined to sleep. Retained the castor oil, but has just now ejected a cup of tea.

Omittr. pil Cal. *c* Quinina.
Sumat haust. ex S. Quininæ gr. ii.
Sp. Ammon. Aromat. gtts. xv.
Aquæ ℥ i.
Omni bihora.
Let him have a little sago by and bye.

12 M.—Has felt very tranquil, and thinks himself better since the morning. Took some sago P. 90 and soft. B. not moved; skin warm, but not hot. T. moist.

Contr. haust ex Quininæ Sulph. et
Spt. Ammon. Aromat.

5 P. M.—P. B. T. and skin, as at the visit at noon.

Habeat Cal. ℈i. Opii gr. iiss. h. s.

15*th*, 9*th of disease*, 6 A. M.—Passed a quiet night; dozed much. P. 92, soft. T. cleaner to-day. B. moved twice, with feculent matter and smell; skin very cool.

Habt. Ol. Ricini ℥ iss. statim, et postea.
Contr. haust Quininæ.

12 M.—Retained the oil; vomited some tea afterwards, and the first draught of quinine at 8 A. M., which was immediately repeated with the change of the Spt. Lavand. Comp. in lieu of the Spt. Ammon. Aromat. P. 96, soft. B. open twice; stools very feculent; skin cool and comfortable. T. cleaner at tip, and edges moist. Has taken some tea with relish.

Contr. Haust.

6 P. M.—Bowels opened twice since noon. T. clean. P. 96, soft; skin cool; feels inclined for some tea. Let him have it.

Sumat pil. Aloet. iii. h. somni.

16*th.*—Slept well during the night, feels himself better to-day. B. have not been opened by the pills. T. tolerably clean. P. 90. Blistered surface not quite healed.

R. S. Quininæ gr. viii.
S. Magnesiæ ℥ ss.
S. Acid. Sulph. Aromat. ʒ ii.
Aquæ lb. ii. M.
Sumat. ℥ iv. omni mane.

From this period, Lt. ——'s convalescence may be dated; he continued to take Aloetic pills at night, and the draught of the mixture above-mentioned every morning, which kept his bowels open. His sleep became good, and he gradually recovered both appetite and strength. It was some time before the blistered surface healed, and before he recovered from some deep excoriations over the sacrum. He is now however as stout and strong as ever.

ON

CHOLERA ASPHYXIA.

PART III.

ON

THE TREATMENT

OF

CHOLERA ASPHYXIA.

Comprising Cases and Observations connected with the administration of Emetics, in that Disease.

In the present communication, I propose to offer a few observations on the treatment of Cholera Morbus. The importance of the subject few will dispute, and I trust that the value of the information, which the labours of others, and the kindness of friends enable me to lay before the Society*, on the present occasion, will form an ample apology for my again trespassing on their time.

In a former communication I endeavoured to prove, that Cholera is but a species of asphyxia, in which though oxygen, and, (it may be,) some of the other constituents of the atmosphere are supplied in abundance to the lungs, they are incapable of appropriating them in the usual quantities for the purposes of life. In so far as I have observed, there is nothing in the mode of treatment, which has been found most successful in the disease, at all incompatible with such a supposition; in a matter however of so grave a nature, we must put aside entirely all speculative opinions, and confine ourselves, as much as its nature will permit, to mere matter of fact, and the lights which experience has thrown on the subject.

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* This communication, like the others, was written for the Medical and Physical Society of Calcutta, but never laid before them.

In pursuing the investigation guided by these principles, I shall not attempt to give any thing like a systematic account of the treatment of Cholera Morbus; but shall confine myself to the observations which my own experience has enabled me to make, except indeed where I avail myself of the use of unpublished documents, with which the members of the Society are probably unacquainted. To have adopted an opposite course, and presented to them a compilation of opinions, with which they have long been conversant, would have been to make a sorry use of the two short hours in the month, devoted to their meetings.

Inconsistent and contradictory as the practice recommended in these pages may appear, it will notwithstanding be found conducive te the following ends, which, as far as I can judge, are in no respect incompatible with each other, viz. To promote arterial circulation; to relieve venous congestion; to preserve sensorial and nervous power; to restore the functions of the decarbonising organs, and lastly to moderate the discharges. Premising then, that my own experience has been principally acquired in Native Hospitals, I proceed to the consideration of the principal remedies exhibited in Cholera Asphyxia.

Of Blood-letting.—Of these, none is perhaps of more paramount importance than blood-letting; and yet it is but fair to confess, that I have not uniformly employed it; the fact is, that in virulent diseases like Cholera, a portion of those affected will die under any mode of treatment, and in the midst of agitation and alarm, until after great experience, we are too apt to fly from remedy to remedy, in the hope of discovering some one, that will prove more successful than that, we have been using.

The testimony of almost every Medical Officer, who has written on the subject, is in favor of venesection; some, it is true, have observed, that different epidemic visitations of the disease are marked by peculiarities, (which is undoubtedly the case,) and have hence been led to infer, that the remedies most appropriate may likewise vary. If I am not mistaken, Dr. Mouat, in his account of the epidemic which attacked His Majesty's 14th Regiment of Foot at Berhampore, has supported opinions* of this

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* That gentleman remarks, "In former attacks of Cholera, venesection I ever found the most speedy and efficacious remedy with Europeans; and when properly timed the flow of blood has relieved the vomiting, the spasms, the restlessness, and jactitation with the great majority. Venesection in the present instance has destroyed the powers of life, sunk the patients, and induced spasms and cold sweats; so that when the pulse was languid, skin clammy, voice feeble or changed, countenance distressed or shrunk, heat below the natural standard, we have been obliged to refrain from bleeding."

I have examined the schedule of cases treated by Dr. Mouat, and strange though it may appear, the result does not warrant nature, more particularly in respect to venesection. I confess, that I have not uniformly had recourse to it myself, and that I have not on some occasions been without misgivings, in respect to the benefit which resulted from it, when I have; on more mature reflection, however, I am inclined to attribute these doubts to the *Experientia Fallax*, and to consider, that from the very nature of the disease, venesection must be as beneficial in one type as in another. It would at the same time be both unfair and unphilosophical, not to admit, that conclusions drawn from experience, erroneous though they may subsequently prove to be, are entitled to far greater weight, than mere abstract speculations, however plausible in appearance.

The effect of blood-letting in some cases of Cholera is so instantaneous, that it would be difficult to account for it, in any other manner, than by supposing it to act, (almost mechanically,) on a disordered state of the circulation, such as I have endeavoured to show exists in this disease. In other instances, in which its effects are perhaps less striking, it would still appear to be productive of the most beneficial results, by enabling the patient to maintain a protracted struggle; and this it does by adapting the column of blood to be circulated to the diminished energies of the heart, and by

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the conclusion which the Doctor has arrived at. Of ninety-four cases treated, twenty terminated fatally, while of forty-eight, who were bled, only six died. The schedule in question is so important a document, that I have given it a place in the Appendix.

obviating the apoplectic engorgement of the sensorium, which never fails to ensue in protracted cases. This in its turn becomes a link in the morbid chain, re-acting on the functions of the heart and lungs, and essentially diminishing the chances of a favorable termination. To me it appears impossible to account for the instantaneous salutary effect above-mentioned, either on the principle of the disease consisting of an inflammation of the stomach, an affection of the great sympathetic nerve, or on any other hypothesis except the one I have hazarded; and were Dr. Kennedy's theory of its being a concussion of the brain well founded, we would more naturally expect copious venesection to extinguish the feeble remaining spark of life, than to relume it. In other species of asphyxia it appears to be practised principally with the view of relieving local congestion, and to me it does not appear, that its use in Cholera forms any exception to the general rule. The best proof of that object having been attained, in the present instance, will be the free flow of the blood, and its return to a more natural and florid color. With regard to the particular stages, in which venesection would appear to be more particularly indicated, it seems superfluous to remark, that our hope from it, as well as from every other remedy, must be in proportion to the promptitude, with which it is had recourse to; this is more particularly the case in regard to blood-letting, for if not practised in the commencement of the disease, the opportunity most probably will be lost for ever, the blood refusing to flow, notwithstanding every solicitation to the contrary. On any other consideration, the remedy appears unexceptionable at any period of the disease: the depression of the powers of life is in a great measure apparent, depending on oppression at the source of the circulation: towards the conclusion, the exhaustion is no doubt more real; but in these protracted cases the blood will not flow, and after all, perhaps no better general rule can be laid down, than to bleed in every instance in which the blood will flow, and to persevere until it assume a more florid and natural appearance*.

Of Leeching and Cupping.—Some have recommended the application of leeches, both where venesection can be practised, and where it cannot. The practice may be beneficial occasionally when blood is obtained; but in so far as I have observed, in severe or protracted cases of Cholera, leeches are very reluctant to bite, and generally no sooner taste blood, than they crumple up and roll off, as if poisoned. This objection cannot of course hold good with respect to cupping, but whether there is any difficulty in drawing blood in that manner, I am not prepared to say: at any rate, neither leeching nor cupping can *a priori* be expected to produce the same favorable results, as when by venesection we operate directly on the circulation, and that too, on the very portion of it most encumbered. It must be supererogatory to remind the reader, that the object of venesection in this disease is to free the circulation ; to strengthen and not to weaken it; to remove congestion about the heart, and not to increase it; and that to effect these objects we ought to be most careful not to induce syncope, never bleeding our patients, save in the recumbent posture, and never failing to tie up the arm, on any symptom of its approach. Where the operation has not been attended with success, we need not hesitate to have recourse to it again.

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* The result of Dr. Cheek's experience, which will be found in a subsequent part of this essay, perfectly accords with these doctrines. Of a total of 103 cases treated by him, 42 terminated fatally; while of 69 cases bled, only 19 died, of whom from one, six ounces were obtained, from another four ounces, and from all the rest even less than that quantity.

Other morbid states requiring venesection occasionally arise in the course of Cholera Asphyxia, which do not however form an essential portion of the disease. In protracted cases, the breathing occasionally becomes difficult and stertorous, from congestion of the lungs ; this may be followed by re-action throughout the system : and though in general, the circulation is capable of overcoming the obstruction, in some instances, if relief be not timeously afforded by the abstraction of blood, the patient will be lost. Again, re-action in Cholera, whether from the quantity of opium taken, or from the effect of undecarbonised blood on the brain, is occasonally followed by coma and stupor ; and the patient will infallibly perish, unless relieved by the means most appropriate in the treatment of apoplectic affections. The following history of a case in which both these states appear to have been present, at the same time, is so interesting, that I have extracted it from Mr. Hamilton Bell's valuable little work on Cholera. The abdominal and other viscera are liable to be similarly affected.

“ *Private Thomas Layton,* 19*th Regiment, Æt.* 22.
Three years in Ceylon.

“ Had not previously suffered from disease.
“ When admitted into hospital, labouring under
“ Epidemic Cholera, says, he has been affected with
“ slight looseness for the last two days; at present,
“ 10 o'clock A. M. 14th August, (1819,) complains
“ of head-ache, vertigo, and faintness, with violent
“ vomiting and purging of watery fluid; the features
“ are shrunk, and expressive of great anxiety;
“ pulse small and intermitting, profuse perspiration,
“ skin moderately hot, tongue clean; has had some
“ spasmodic twitches in the fingers and toes. Although
“ the state of collapse was fast coming on,
“ I still considered, that the circulation might be
“ relieved by venesection: lb. iss. of blood was
“ abstracted from two orifices before it ceased to
“ flow. He was instantly placed on a spirituous
“ vapour bath, took hydrargyri submuriatis gr.
“ xxx. powder, and several stimulant anti-spasmodic
“ draughts, the second of which was combined
“ with Tinct. Opii. ʒ i.

“ At 12 o'clock, the vomiting and purging still
“ continued: took another dose of hydr. submur.
“ gr. xxx.; had his abdomen fomented and rubbed
“ with Ol. terebinthinæ. His head was also shaved,
“ which, together with his legs and arms, was

“ rubbed with a liniment composed of antimonii
“ tartras and ol. commune. At this time, the state
“ of collapse was completely formed; he tossed his
“ body and limbs to and fro on the couch; the vo-
“ miting and purging was now relieved, but cold
“ clammy sweats continued, with spasms in the
“ extremities, for the space of ten hours, during
“ which time blisters were applied to the head and
“ thorax; he was kept warm by the vapour bath;
“ had repeated stimulant glysters, and his limbs
“ rubbed with various strong embrocations.

“ *August* 15*th*, 10 *o'clock* P. M.—Was still in a
“ cold perspiration; *continued perfectly collected;*
“ pulse began to flutter, and both blisters had vesi-
“ cated. From this period the pulse gradually rose,
“ and by eight o'clock next morning the skin was
“ moderately hot; pulse slow and steady; had not
“ had a natural evacuation.

R. Pulv. Rhei ℈ ii.
Aquæ Cinnam. ℥ ii.

“ *Vespere.*—Had not had a stool, but had *made*
“ *water several times,* and slept two hours; is ex-
“ tremely exhausted and torpid; was allowed some
“ wine, and such food as he fancied.

R. Enema Purgan.

“ *August* 16*th.*—Is still in a state of torpor and
“ listlessness; pulse steady; no appetite. The enema
“ brought away some fœtid stools.

R. Hydrarg. Submur. gr. x. ter in die.
Repet. Enema cathart.

" *August 17th.*—The stupor and insanity, with " obstinate costiveness, continue; he also complained of pain and fulness of the left side, with " oppression of the breathing. Thirty leeches " were applied to the thorax, and four full doses of " cathartic pills were administered, which produced " some bilious stools; pulse and heat natural.

" *August 18th.*—The stupor and *catching in " breathing* having increased, he was put into a " warm bath; the former blister being healed, another was applied to the thorax, and the catharsis " kept up by a cordial rhubarb mixture."

The case goes on till the 22nd August, symptoms and treatment continuing much the same, on which day this is the report:—" Breathing more " oppressed; *pulse still regular;* has not had a " stool from the medicine.

R. Enema Purgan.
c. Ol. Terebinthin. ℥ ii.

" *Vespere.*—Low muttering delirium came on " during this day. He gradually sunk, and died " about three o'clock on the 23rd instant.

" *Sectio Cadaveris, Five Hours after Death.*

" On taking off the skull-cap nothing unnatural " appeared on the surface of the dura mater, excepting a number of veins running over it much " distended with blood. A great proportion of the " veins likewise on the surface of the brain were " highly turgescent, and some of the smaller " branches contained portions of air intermixed " with blood. The cortical and medullary parts of " the brain were natural in appearance and con-

" sistence, except the latter exhibiting, when cut " across, numerous bloody points. The right lateral " ventricle contained about two drachms of serous " fluid, the left about one and a half drachms. The " pineal gland was very firm in consistence, but " natural in colour; there was nothing remarkable " about the other parts of the encephalon; there " was about half an ounce of serum slightly tinged, " in the base of the brain. The medulla spinalis " was so firm in texture as to approach to the con- " sistence of ligament; the vertebral canal could " not be examined in a manner sufficiently satisfac- " tory, for want of proper instruments; and the " only circumstance which I was capable of noting, " was part of the serous fluid oozing out, which " no doubt ran along the sheath lining the canal " from the base of the brain*." "The appearances of the chest and abdomen are given. In the former there was evidence of the existence of inflammatory action; in the latter, the viscera had the usual character of disordered circulation consequent on a partial recovery from Cholera."

To those conversant with the treatment of Cholera Asphyxia a doubt will probably occur, if a moderate abstraction of blood, and other means of depletion, had recourse to about the 16th or 17th, might not have been the means of preserving life in this instance.

Of Blisters.—From vesicatories applied to the region of the stomach I cannot say, that I have known much advantage to be derived: they usually occasion considerable pain and irritation, and add greatly to the sufferings of the patient. When applied early in the disease, while the skin is yet warm, they occasionally appear to be of service in allaying the irritation of the stomach, and in promoting the cure; but it is to be recollected, that such cases are either of the mildest character, or are met with, under the most favourable circumstances; where the case is seen in a more advanced stage, and the vital powers on the surface have become impaired, it is useless to apply them, for they never rise; they may detach the cuticle, but occasion no discharge; and in that event, I have never known them to be productive of the slightest advantage. When it is determined to apply them, the surface should be prepared for their reception by frictions with equal parts of the Emplastrum Lyttæ, and Oleum Terebinthinæ. Sinapisms applied to the region of the stomach are more highly spoken of, by those who have employed them. From blistering along the course of the spine, it appears to me, that I have derived far more advantage, in so much, that latterly I have never neglected to have recourse to it, in any case, that threatened to become dangerous. It occasions no great trouble either to the patient or the practitioner. A mixture consisting of equal parts of Emplastrum Lyttæ, Oleum Terebinthinæ, and Unguentum Hydrargyri is to be rubbed into the spine, about two inches broad, throughout its whole length, for about half an hour; and if this does not prove sufficient, the operation may be repeated in a couple of hours, and will seldom fail to produce vesication. The advantage derived in this instance, and I hold it to be unequivocal, is probably to be attributed to the stimulus of the blister acting on the sensorium and spinal marrow, and maintaining or exciting their energies after they have become oppressed and congested with venous blood.

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* Ceylon MS. Reports.

Of Opium.—Opium is perhaps the medicine that of all others has been most invariably administered in Cholera, and yet I confess I entertain considerable doubt of the propriety or advantage, with which it is exhibited in certain stages of the disease. In the first onset, I grant that I know no medicine, that can be given with a greater prospect of success, particularly if combined with a stimulant. The precise dose, in which it should be given to an adult, may admit of a variety of opinion; and no doubt, it will vary under the circumstances of each particular case. In general, at the commencement, I have been in the habit of giving a drachm of the tincture, with as much of some diffusible stimulus, the Spiritus Ammoniæ Aromaticus for example: some are in the habit of giving much larger doses, and of repeating them too; but I am not aware that their success has been greater than that which has attended those, who prescribe the medicine in more moderate quantities. The natives generally administer it in doses considerably smaller than we do, and repeat them more seldom; and yet, if their reports are to be credited, their success is greater than that which attends our hospital practice.

In one of the accounts of the Russian Cholera, it is mentioned, that the mortality among the troops was proportionally greater than among the peasantry; if this be true, the fact is singular, and can in my opinion only be accounted for by the latter being treated more on the *Medicine expectante* than the soldiery; and perhaps in no respect does this observation hold so true, as in regard to the administration of opium.

When the patient is first seen, probably no single medicine can be given with an equal prospect of success; and perhaps this is equally true in regard to its use for the first two or three hours, should there be occasion to continue it; for if the circulation rally under its use, or sleep be induced, in a great chance, the case will terminate successfully; on the contrary, however, if its administration to a fair extent have been followed by no marked improvement, and the breathing have commenced to be difficult, far less laborious, every additional dose of this medicine will be highly prejudicial; as the disease advances, the contents of the cranium become gorged with undecarbonised blood, and every medicine, which has a tendency to encrease that state, can only act as fuel to the flame. With equal propriety might we administer it in apoplexy. I say this advisedly, for I have stood by, more than once, and deliberately observed the stertor and difficulty of breathing increase with every dose of opium. The same remark, I am inclined to think, holds equally true in respect to vinous stimulants, which possess the additional disadvantage of being neither grateful nor congenial to the stomach in this disease*.

Occasionally opium will appear to be completely successful in checking the vomiting and purging, the spasms may be trifling or altogether absent, and yet the patient continue to sink with redoubled speed. This is neither an imaginary nor an uncommon case, indeed I have known an epidemic marked by these characters ; it is one, however, which requires a peculiarity of treatment : under such circumstances opium is not indicated, and it would be folly to persevere in its use. It must be admitted, that cases of the sort are pregnant with danger in whatever manner treated ; but perhaps the wisest course to adopt, is to restore the discharges without delay, and the operation of an emetic offers the best prospect of effecting that object. These observations are not intended in any way to apply to minute doses of opium, given at considerable intervals in combination with Calomel, or any other medicine, with the view of stimulating the powers of life, without incurring the risk of overpowering them.

Of Stimulants.—Medicines purely stimulant, that is partaking in no respect of narcotic qualities, may be had recourse to, in my opinion, throughout the disease, with advantage; indeed in protracted cases, they are the only remedies almost, with the exception of small doses of Calomel, on which we can place any reliance. The essential oils are in universal use, and one is perhaps nearly as efficacious as another; ammoniated Tincture of Valerian has been used, as well as the Tincture of Cantharides, and both with supposed advantage; the principal however of this class of medicines are the different preparations of ammonia. The following is the mode in which I usually prescribe it, where the object is merely to support the patient's strength through a protracted struggle.

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* In ninety-four cases treated by Dr. Mouat, twenty died, while of thirty-two who had Brandy or vinous stimulants, nineteen died. I am aware that this is no legitimate deduction ; yet still the fact is worthy of remark.

R. Camphor.
Carbon. Ammon. āā. ʒ ss.
Aquæ ℥ viii.
Spt. Æther Nitros. ℥ ss.
Ft. mistura cujus sumat Æger ℥ i. omni quaque hora.

When re-action has commenced, a bitter infusion like the following, may often be substituted with advantage.

R. Pulv. Radic. Calumbæ.
Zingib. āā ʒ i.
Aquæ Bullient. ℥ viii.
Infunde pr. horam dein cola et adde Tinct. Cardamom.
c ℥ i. sumat Æger ℥ ii. secundis horis.

Ammonia is however occasionally employed, not merely as an auxiliary, but as a principal in the treatment of Cholera Asphyxia. My own experience of its exhibition on these principles has not been great. In perusing the report on Cholera, issued by the Medical Board of this Presidency, I was struck with the advantage, which seemed to have attended its use, in the instance of Poorum Sook, a sepoy, whose case forms the 30th of the Appendix to that work. I had occasionally afterwards used the medicine in reduced doses, with a degree of success, to induce me to make farther trial of it; this I accordingly did, in the following instance:

A domestic of my own, of Herculean figure for a native, was seized with Cholera in July, 1826, while I was passing Barrackpore in charge of a wing of the 22nd Regiment Native Infantry, in which Cholera then prevailed. The man took Calomel and opium without advantage. He was bled to twelve ounces, fainted, and apparently afterwards got rapidly worse. The labour in respiration was great, and indeed all were convinced, that death was rapidly approaching, nay that it was near at hand. In this state, two drachms of the Liquor Ammoniæ were given, in a mucilaginous vehicle, and repeated every half hour. The patient soon showed symptoms of amendment under this treatment, but ere the medicine was left off, he had taken from my own hands, in the course of four hours and a half, nine doses of two drachms each, or two ounces and two drachms of Liquor Ammoniæ. The medicine, it is true, may have been old and weak, yet still the quantity is enormous. The patient did not afterwards recover rapidly, but on the contrary, was nearly a week before he could leave the boat. It is natural to suppose, after the decided good effects of the medicine in this instance, that I must again have had recourse to it, in other cases; I cannot however recall to my recollection any instance, in which I did so with very striking effect: others however have administered it extensively, and apparently with the greatest success. Dr. Ludlow, the Superintending Surgeon of the Neemuch circle, in a letter to my address, describes the success which attended its administration, in the hands of Mr. Assistant Surgeon Mottley, in an epidemic, which prevailed at Ajmere, in September, 1831, in the following terms: "I regret to state, for the information of the "Board, that the Cholera made its appearance at "Ajmere early in this month. A number of people "have fallen victims to it, but Sub-conductor "Digges of the magazine is the only European "amongst the number."

"Mr. Mottley, the Civil Surgeon at Ajmere, re-"ports, that 'from the 5th to the 22nd of the month, "165 persons had taken the Liquor Ammoniæ and "recovered: 68 had died of Cholera, but out of this "number six only had taken Liquor Ammoniæ.' Mr. "Mottley has not only given this medicine with much "success, but Captain Dixon of the magazine, and "the Cotwal of the city, who were furnished with "the remedy, found it likewise beneficial."

"The Liquor Ammoniæ is given as soon as pos-"sible after the attack, in a dose of two or three "drachms in a wine glass of water, and repeated, "if necessary; the subsequent treatment is Calomel "and Extract of Colocynth, until the congee-looking "inodorous stools are followed by dark and offen-

" sive motions. This seems to me a judicious " treatment of Cholera, and I am happy in having " it in my power, farther to report to the Medical " Board my approbation of Mr. Mottley's professional zeal and attention, on this occasion."

Mr. Steart, the Assistant Surgeon attached to the Political Agency at Mundlaiser, has likewise exhibited the Liquor Ammoniæ, with more than ordinary success. He is in the habit of prescribing it in doses of thirty drops, or half a drachm, repeated every five, ten, or fifteen minutes, until re-action has commenced. Mr. Steart is at the same time a warm advocate for bleeding. The average quantity which he found it necessary to abstract, was seven ounces; and he remarks, that those, who were not bled, recovered more slowly, than those who were.

Of Calomel.—Calomel is one of the remedies next in importance, in the treatment of Cholera, or if not in importance, at least in the frequency with which it is administered. When the irritability of the stomach has been allayed, I have been in the habit of administering it in moderate doses, from time to time, and perhaps rather with advantage than otherwise. I have likewise administered it in scruple doses, repeated occasionally; I cannot say, however, with any perceptible advantage; on the contrary, it seemed to me to depress the powers of life, and to hasten on those drenching cold colliquative sweats, than which there is scarcely a more unfavorable symptom in the disease. It is generally supposed, that small doses of Calomel excite greater hepatic irritation than large ones; it is consequently rather difficult to say, on what principle the latter are had recourse to, in this disease. If with the view of being taken into the system, the hope seems rather chimerical, seeing that Ptyalism is comparatively of rare occurrence as a sequela of the disease, and I believe quite unknown as the effect of the remedies, during its continuance. When the stage of depression has been overcome, and reaction fairly established, a combination of this medicine, with any warm aromatic purgative, will be exceedingly useful in clearing off bilious colluvies, or perhaps rather in stimulating the liver to throw off the residue of the undecarbonised blood remaining in the system. I have had little experience in administering Calomel in large doses, with the view of tranquillizing the stomach; nor do I think that an object either of very great importance, or very difficult of attainment. And in so far as consists with my experience, the sudden cessation of vomiting and purging, without symptoms of reaction becoming at the same time apparent, is one of the most dangerous states, that presents itself in the progress of Cholera Asphyxia.

Of Nourishment and Drink.—With the view of allaying thirst and supporting the patient's strength at the same time, I have uniformly been in the habit of allowing the sick a few ounces of milk from time to time; to this I have some times added twenty or thirty grains of the Carbonate of Magnesia, every second or third hour, and I think with advantage. I have administered the magnesia in three drachm doses, as recommended by Mr. Ainslie, but not, in my opinion, with any additional benefit: when exhibited in scruple doses, it would appear to act merely as an antacid; whereas, when given in larger doses, it acts as a purgative, depressing the powers of life, instead of rousing them. Given in the mode I have recommended, it is likewise frequently useful in relieving hiccup, which is not a very uncommon symptom in this disease, and by no means a fatal one. Of Magnesia and milk, or Cajeput Oil, as *specifics* in Cholera, it is hoped, it is superfluous in the present advanced state of medical science to offer a remark. The very idea could only have been tolerated during periods of anxiety, agitation, and alarm. Cholera is as much to be treated on general principles, as any other species of Asphyxia; and every means external or internal, capable or likely to assist in affording relief, ought to be brought to bear on the disease.

Of Galvanism and Oxygen Gas.—Galvanism has been used with partial success, if we are to believe the accounts given by Mr. Anderson, in an interesting paper on the disease, which is to be found in the 60th No. of the Edinburgh Medical and Surgical Journal. Oxygen is undoubtedly indicated, and has been used in this country with temporary benefit; but when we reflect on the little success which attended the exhibition of both the above remedies, in the hands of Dr. Babington, in another species of Asphyxia, we cannot rationally indulge any sanguine expectations of advantage from their use, in this. Dr. Paris' account of the experiment in question is too interesting, and too much in point, to require any apology for its introduction in this place.

" It is moreover questionable, whether so power-
" ful a stimulus may not produce a subsequent
" exhaustion of the muscular energy : such effect
" indeed would appear to have happened in the
" case related by Dr. Babington, where the
" Asphyxia had been occasioned by the fumes of
" burning charcoal. Having passed, (says he,) a
" galvanic shock through the chest, the patient in-
" stantly to our surprise, drew his breath deep, the
" muscles of the abdomen were seen to re-act, though
" feebly, while those of the face were slightly con-
" vulsed, and the eyelids were raised ; at each suc-
" cessive application of this powerful agent, the
" respirations were more forcibly performed, and the
" stroke of the artery at the wrist rose in the same
" proportion. Having procured a bladder filled with
" oxygen gas, we caused it to be inspired, and we
" thought that it was followed by an increased acti-
" vity of the powers of respiration and circulation ;
" as the heat of the body was not deficient, we now
" sprinkled the face and chest with cold water, which
" also had the effect of rousing the dormant powers
" of sensation, as the respiratory muscles were uni-
" formly thrown by it into action, though in a more
" feeble and interrupted manner, than when we em-
" ployed the galvanic influence. Having received a
" large supply of oxygen gas, we repeated the
" inhalation and the galvanic successions, alternately

"through the chest and head, every half hour, for "three hours, when the galvanic influence was discontinued, as the heart, though uniformly excited "by it, seemed in the intervals to act more feebly, "and we were apprehensive, that by exalting the "action of one power continually, we might destroy "that equilibrium of forces, which is necessary to the "maintenance of life*." The following cases, in illustration of this part of our subject, are taken from the Official Reports on the Russian Cholera, made to the British Government by Drs. Russell and Barry.

"The first subject was a soldier, about 30 years "of age, thin, but well formed. Face livid, pale, lips "blue; countenance patient, but despairing; respiration difficult; skin marble cold, although the "thermometer stood in the ward at 20° Reaumeur. "Fingers shrivelled; feet blue: scrotum black; no "pulse; tongue loaded in the middle, but cold and "moist; scrobiculus cordis drawn inwards and upwards; voice gone; no evacuations of any kind. "Had been admitted on the 21st, with Intermittent "Fever, from which he had recovered rapidly, "and for six days had no paroxysm. Seized yesterday morning suddenly, about 10 A. M. with "diarrhœa and vomiting.

"*Fifty-five minutes past* 11, A. M. The bulb "of a bent thermometer, with the mercury, was "placed under his tongue. After some minutes the "metal rose one-fourth of a degree."

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* Paris and Fonblanque, vol. ii. page 83.

2. Under the arm, in the armpit, the mercury stood exactly at 20°.

3. The negative wire of a galvanic battery was placed in contact with the back of his neck, the positive with the scrobiculus cordis: some slight twitchings of the diaphragm were produced, with feeble efforts to vomit. No pulse; becomes weaker and more deeply blue. The action of the battery, though composed of seventy two plates, was very feeble.

The above experiments continued to twenty minutes past 12 o'clock, when frictions with turpentine liniment were ordered. The poor man looks precisely like a corpse. Sir James Wylie remarks, that the present state of the patient resembles exactly the cold fit of the apoplectic tertian, or hemitritæus of Bulgaria, from which the Russian army suffered so much, when in that country, and of which he had seen several hundred cases.

Seems to breathe better since the friction.

Thirty-five minutes past 12. Throws forward the under jaw, at each expiration. Fatal sign! Death invariably follows closely upon this convulsive, though regular movement in animals, when undergoing experiments. Died at four minutes past 1 o'clock.

Second Subject.

A soldier, young, athletic, and beautifully formed; small, irregular, intermittent pulse.

Made to respire oxygen gas, from a bladder, armed with a mouth-piece. After several inhalations a slight change was thought to have taken place in the pulse. The man said, that the pains in his back were increased by the inhalation. After about fifteen minutes, the experiment was discontinued, and the patient left to ordinary means.

External applications.—External applications are generally useful as auxiliaries; but merely in that light, they ought notwithstanding never to be neglected. The general estimation, in which the hot-bath is held, does not appear to be high; the temporary relief, which it affords in some cases, is too often counterbalanced by the subsequent depression and exhaustion which it occasions. Increased temperature, obtained by means of chaffing-dishes, filled with live charcoal, and placed under the patients' cots, I have repeatedly had recourse to, but never with decided benefit; it is besides exceedingly disagreeable to the sick, and seldom fails to increase the restlessness and jactitation, which are not only so distressing to the patient; but interfere so materially with the beneficial operation of the other remedies. Dalton's vapour bath is open to the same objection. Mercurial fumigations however, administered in that manner, might be worthy of a trial*.

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* Common Cinnabar might be used for the purpose, or Calomel washed in Liquor Ammoniæ, as recommended by Mr. Abernethy. The native mode of fumigating, recommended by Dr. Gibson, I have found very speedily to effect the system, on ordinary occasions. He describes the materials and proportions of each as follows: Quicksilver ʒ iii. Litharge (Moordar Sung) ʒ iss. Red Lead (Sendoor) ʒ iii. Sulphate of Copper ʒ ss. the whole triturated into a mass, with the leaves of a jungle plant Shetur, (I use Datura,) and divided into 14 portions, each

The application of bottles, filled with hot-water, around the patient, ought to be attended with advantage; but they are so often mismanaged, that instead of adding to the patient's comfort, they become additional sources of annoyance. Instead of being wrapt in slips of blanket, made for the purpose, they are too often applied without any covering, and consequently seldom fail to burn, and disturb the patient, every time they come in contact with his body. Bags filled with heated sand may be less objectionable. The common frictions are not much better, they entirely deprive the patient of any chance of rest he might otherwise have had from his medicine. In short, the best application of this sort, that I am acquainted with, is dry fomentations. Towels or pieces of folded flannel are to be warmed over a brazier of live charcoal, and applied in constant succession to the extremities; sinapisms to the lower extremities, if judiciously made and applied, will be exceedingly beneficial, particularly in protracted cases, by assisting to preserve the sensorium in a clear and energetic state.

Such are the principles, on which I was latterly in the habit of treating this formidable disease; and it appears to me, that my practice was attended

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the size of a nutmeg; when applied for use, one of these is placed on live cow-dung, in an earthen pan, and the patient, surrounded with a blanket, is exposed to its vapour for half an hour, morning and evening.

with a greater degree of success, than it had formerly been, while I endeavoured to follow up the too often indefinite directions, to be found in the earlier works on the subject. Still the success was not that, which might have been hoped for, far less desired* ; and I determined accordingly to glance over the materials, from which Dr. Jamieson compiled his work, with the hope of discovering a clue to some system, which might be more successful. In the search, I was fortunate enough to find a communication of importance, which would appear to have been received, after Dr. Jamieson's work had passed through the press. The following is the document in question:

To J. JAMIESON, Esq.
Secretary to the Medical Board.

DEAR SIR,

The Cholera Morbus made its appearance, for the third time, in the 2nd Battalion 26th Regiment, on

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[*] The great want of success, which attends the common practice of administering calomel, opium, and stimulants in this disease, seems to have forcibly occurred to many medical officers, perhaps to most, who have either had much experience or been moderately acute observers. Mr. Ludlow, in writing on this subject, remarks: "Under the impression, that the usual treatment "of Cholera with opium and calomel, especially in large doses, is "far, very far from being successful," &c. And again Mr. Steart:—

"On the appearance of Cholera here in August, 1830, it "should be mentioned, that in the few first cases I had, in "which I adopted the treatment usually followed of large doses "of calomel, opium, and stimulants, and also tried blisters of "scalding water, all the patients died."

our arrival at Mhow, from Kurnaul, the 15th December last: 15 men of the battalion, and eight camp-followers were attacked from that day till the 21st, when it suddenly disappeared. I have never seen the disease so violent as in this instance; of the fifteen Sepoys, nine died, and four of the camp-followers; we were encamped close to the 24th Native Infantry and 1st Regiment Native Cavalry, and in neither of these corps did the disease appear. The first seventeen cases were treated with large doses of Calomel, Laudanum, volatiles, and stimulants, and only four recovered. Early blistering, the hot-bath, and frictions were also tried. As nothing could be more disheartening, than my present want of success, and by the same means I had formerly used, pretty successfully, I was really at a loss, what other plan of cure to pursue. Being informed by Mr. Wilson, Surgeon to Sir John Malcolm, that some of the medical men with the Madras and Bombay troops in Malwa, had used emetics, and antimonials in many cases, successfully, the last six cases were treated on their plan, four of which I shall beg leave to detail.

Case I.—Jhaleem Sepoy, age about 27, of spare habit, but subject to no particular complaint; was brought to Hospital at 11 A. M. 18th December. Says he first felt unwell on the 16th; present illness commenced this morning, with violent purging of thin congee-coloured stuff; retching soon followed: these symptoms continue in full force, ; eyes sunk; pulse scarcely perceptible; skin cold and clammy; extremities cramped; great thirst; burning sensation in epigastrium; belly distended and painful to the touch; constant cry for cold water. Tart. Antim. gr. i. every 15 minutes, till full vomiting is produced. 12 M.—second dose vomited copiously, much indigested rice and dhal discharged, sour and offensive. Pulse the same; cramps less severe; one watery stool. Tart. Emetic. gr. i. to be repeated. Half past 12 M.—three severe fits of vomiting from 3rd dose; more undigested food thrown up; expresses relief from the vomiting. Another watery stool. 2 P. M.—vomited once since last report; some yellowish green stuff discharged; thirst more moderate; pulse more distinct; one stool; cramps bearable. Tart. Antimon. gr. ¼. every half hour, warm water occasionally. 6 P. M—pulse improving; has taken the medicine regularly; vomited twice; several bilious offensive stools; heat pretty general; annoyance from cramp; trifling pain in stomach, and heat in bowels considerably relieved. Medicine to be continued in same doses. 9 P. M.—Tart. Emetic has been given three times; several reddish stools; frequent nausea, but no vomiting; appears languid; pulse distinct. Tart. Antimon. in half the quantity to be given occasionally during the night. 19th, 6 A. M.—slept a little; feels easy; took medicine four times; four stools of same reddish offensive stuff; vomited twice; pulse feeble, but distinct. Tart. Ant. omitted. Infusion of ginger and congee for drink. 2 P. M.—continues easy; no vomiting or stool. Calomel. gr. x. Pulv. Antimon. gr. iii. statim. Vespere, Infus. Sennæ ℥ iii. 20th—6 A. M.—slight retching in the night; once purged. Belly free from pain; spasms in legs gone;

tongue moist; pulse firm. Calomel. gr. iii. Pulv. Jalap. gr. x. every two hours, till three or four copious motions are procured. 21st—6 A. M.—3rd dose purged copiously; countenance cheerful. Pulse good; makes no particular complaint; bowels to be kept openwith Infus. Cheretta and Senna.

23rd.—Convalescent. Discharged in January.

Case II.—Gopaul Singh, Sepoy, a stout middle-aged man; admitted 18th December, at 11 A M. Was suddenly seized at five this morning, vomiting succeeded in three hours; countenance denotes great distress. Extremities cramped and cold; thirst excessive; constant retching; stools watery, and passed sometimes involuntarily. Pulse fluttering; spasms in abdominal muscles; burning sensation in stomach and bowels. Tart. Antimon. gr. i. till full vomiting is excited. 12 M.—has not been vomited by two doses; symptoms the same; one green watery stool. Third dose of one grain to be given. Half past 12 M.—Severe vomiting from third dose; contents of stomach congee-coloured stuff; no bile observed; very languid. Pulse indistinct; spasms not relieved; other sensations nearly the same.

2 P. M.—once vomited since last report; pulse the same; one stool; distress continues. Tart. Antimon. gr.$\frac{1}{4}$, every half hour. 6 P. M.—has taken the medicine regularly; vomited twice, several watery greenish stools; skin warmer; pulse a little improved; thirst and general distress less. Tart. Antim. in half the quantity last mentioned, to be given occasionally, during the night. 19th, 6 A. M.—the medicine given ten times; se-

veral congee-coloured motions in the night; one copious bilious discharge towards morning; observed to sleep a little; frequently nauseated, but not vomited. Pulse pretty good; heat general; feels comparatively easy. Tart. Ant. omitted. Tongue loaded; spasms in limbs trifling. Infus. of ginger and congee for drink. 12 M.—favorable symptoms continue. Calomel. gr. x. Pulv. Jalap. gr. xv. statim. 20th, 6 A. M.—not purged, once vomited; slept some hours. Pulse good; thirst moderate; skin warm and moist. Ol. Ricini ℥ i. Infus. Sennæ ℥ ii. statim. 6 P. M.—six dark bilious motions; skin and pulse nearly natural.

22nd.—Convalescent. Discharged in January.

Case III. Bridge Lall Choubey, a strong muscular middle-aged man; brought to Hospital at 2 P. M. 18th December. Purging and violent retching began, a few hours before he came to Hospital, and continue unabated; spasms particularly violent; thirst urgent; pulse feeble; cold perspiration on face and chest; burning in bowels. Tart. Antimon. gr. i. till vomiting takes place. 6 P. M.—third dose operated fully; three watery stools; pulse still very feeble; skin feels warmer, felt bitterness in the mouth after vomiting; heat in bowels continues; occasional severe gripings; very restless. Tart. Antim. gr. ¼ every half hour; warm water occasionally. 9 P. M.—five doses taken; three times vomited; three motions, described as copious and feculent; nausea considerable; pulse keeps up: heat more general; partial warm perspiration; cramps less severe. Tart. Antim. gr. ¼ occasionally, during the night. 19th. 6 A. M.—slept some time in the night; only five doses taken, several times purged; no vomiting. Belly less painful and hot, countenance improved; heat nearly natural; pulse steady. Says he feels much relieved. Calomel. gr. x. Pulv. Jalap. ℈i. statim. 20th.—Jalap made him sick; had however three copious motions; pulse 80; cramps gone; belly easy; Ol. Ricini ℥iss. 21st.—purged freely, makes no complaint; calls for food. 22nd.—Convalescent. 28th.—Discharged.

Case IV.—Benj. Beckwith, Drummer; admitted at 1 P. M. 21st December. Complaints commenced last night, with the usual symptoms of purging and vomiting, for which he had taken a dose of opium from the bazar: not finding any relief, was brought to Hospital. Constant retching and purging; muscles of arms and legs rigid, fingers bent; least motion in bed, aggravates all his sufferings; belly painful to the touch; feels hard and distended. Legs cold; face covered with clammy sweat; pulse very feeble. Heat in stomach and great thirst. Tart. Antim. as in preceding cases. 6 P. M.—three doses, vomited freely; matter discharged greenish yellow colour; does not complain so much of cramp, and thirst is less. ¼ grain doses have been given, and keep up considerable nausea and partial perspiration; has had several watery stools. 9 P. M.—continues easy; skin moist; pulse stronger; four doses taken since 6 o'clock. Calomel ℈ i. 22nd.—three copious motions. Slept some hours. Pulse firm; spasms nearly gone; skin warm and moist. Ol. Ricini ℥ iss. 23rd.—purged freely by the oil. Sensations comfortable. 24th.—convalescent. 1st January—Discharged.

The other two cases were treated in the same manner, andas speedily recovered. Whenever an opportunity occurs, I shall certainly have recourse to this mode of treatment; the successful termination warrants a farther trial. I have heard of its having failed in many instances, but this has been the case with almost every medicine, that has been tried in Cholera: V. S. was out of the question in the majority of the cases; the patients sank so rapidly. It is very singular, that not a case occurred in any of the other corps, or even amongst the bazar people, or inhabitants of any description. It visited this station in January last, and attacked many of the 14th Madras Native Infantry. We had reports of its being at Mudasoor and Nollye towns, through which we passed on our route from Neemutch to Mhow. The disease is said to appear very frequently in Malwa, and to carry off many of the inhabitants.

I am, dear Sir,
Your obedient Servant,
J. THOMSON,
Assist. Surgeon,
2nd Batt. 26th Regt.

Right Bank of the Nerbudda Mundlaisir, April, 1820.

It is superfluous to inform the members of the Medical and Physical Society, that Dr. Thomson is one of the ablest and most intelligent members of our service. In a communication with which I was lately favored by him, he informs me, that he has not since had an opportunity of treating Cholera Morbus, but that if he had, so great is his confidence in Tartar Emetic, that he would immediately have recourse to it again. My attention was more particularly fixed on Dr. Thomson's communication, from having been informed, many years ago, by Mr. Renton of the 1st Regiment of Cavalry, that he had been more successful with Tartar Emetic, than with any other remedy. I was likewise aware, that Mr. Sullivan, when attached to the Sylhet Light Infantry, had used emetics with comparatively good success, in a most virulent epidemic Cholera, which swept the Cachar valley in 1825. Encouraged by these circumstances, I determined to make trial of the remedy in the first case that should occur to me, and fortunately one was not long in presenting itself. About noon (in December), I was requested by Dr. MacDowell to see one of his syces. The man was labouring under Cholera Asphyxia; it was altogether a most favorable case for experiment: the attack was far from being a slight one; at the same time, the patient was by no means in a hopeless condition. There was purging and vomiting of congee-coloured matter, the eyes were sunk, and encircled with a dark areola; the voice was feeble, and shrilly pectoral, and the hands cold; but the pulse, though very weak, was perfectly distinct at the wrist. The only medicine, I had at hand, was Laudanum, a tea-spoonful of which was given, and a servant sent off for a solution of Tartar Emetic. The Laudanum was vomited; and Dr. Nicolson, who happened to call, in the interim, gave the man a pill of opium, Asafœtida or Camphor, and Capsicum, which had likewise been rejected. I repeated the Laudanum, but with no better success, and the man was evidently losing ground rapidly. It was now two o'clock P. M. and the Tartar Emetic solution had arrived. It consisted of eight grains of Tartar Emetic, dissolved in as many ounces of water; of this one ounce was given every quarter of an hour, and the patient was directed to drink as much warm water as he liked. The medicine was taken three times, and produced far less vomiting, than might have been expected or desired; and no depression of the vital powers, whatever. I saw him again at 4 o'clock, and if he were not better, he certainly was not worse. The pulse was as good as before, and the respiration as easy as a child's. I now directed two drachms of the solution, ($\frac{1}{4}$ of a grain of Tartar Emetic,) to be given every half hour only. I saw the man again at 6 o'clock P. M. and he was decidedly worse; this I attributed to the diminished quantities, in which the medicine had been given, and determined to recur to the one grain doses, notwithstanding the remonstrances of Mr. Sully, who happened to be with me at the time. The man took two or three doses, when the medicine was expended. We saw him at 8 P. M. and he was certainly not worse—perhaps better. The medicine appeared to have completely the power of suspending the progress of the disease *pro tempore.* A farther supply of the Emetic solution was ordered to be procured, and instructions given to administer one ounce more, and a pill of Calomel, camphor, and opium at bed-time. I was wakened at 11 P. M. and informed, that the solution had only then arrived, and that the man was much worse in every respect. I directed the solution to be left off, and the man to have the Calomel, camphor, and of opuim pill immediately, with ammoniated draughts during the night, and occasionally milk and magnesia to support his strength, and allay his thirst. I was awoke next morning with the pleasant but unexpected tidings, that the patient was much better; he was so, and had had a feculent motion during the night. The case afterwards proceeded favorably, and the only thing else worthy of remark is, that about noon he again appeared to be in a doubtful state, when I administered one ounce more of the Emetic solution, without its producing the slightest depressing effect.

Shortly after the occurrence of this case, I had occasion accidentally to learn, that Cholera was prevailing to an alarming extent at Bancoorah. I lost no time accordingly in addressing a letter to Dr. Cheek, the medical officer at that station, of which the following is a copy:

"My dear Sir,

"I have learned by accident, that Cholera is prevailing to a great extent at, and around the civil station of Bancoorah, and have in consequence been induced to address you on the subject.

"On looking over the records of this office, I was fortunate enough to find a communication containing six cases of the disease, treated in succession, by means of Tartar Emetic, with perfect success. A copy of one of these I have now the pleasure to send you.

"I had myself, very soon after, an opportunity of making trial of the remedy, and with perfect success; I used it in the same doses; but as my patient afterwards threatened to relapse, I was obliged to recur to the one-grain doses a second time. The most remarkable effects of the remedy are these: notwithstanding the free use of warm water, it produces much less vomiting than might be expected: judging from its effects, it would appear to stimulate, rather than depress; under its influence, respiration remains free, easy, and natural; and lastly, it would almost appear to have the power of suspending the progress of the disease *pro tempore:* to qualify these praises, however, I must inform you, that I have only myself treated one case, in the manner described.

"I made a solution of the medicine in the proportion of one grain to the ounce, for facility of administration, and followed up its use by a pill of Calomel, camphor, and opium at bed-time.

"I have been informed by an intelligent member of the profession, not in the service, that he has had very great success, by administering portions of a solution of half a drachm of Sulphate of Zinc in twenty-four ounces of water; for my part I would still have recourse to opium, in the commencement of the disease, administering one, two, or three doses; but failing to procure sleep, or a decided mitigation of the symptoms, I would immediately have recourse to the emetic remedy, which need not, by the way, interfere with external applications.

"Should you be induced to try this mode of treatment, any cases or information, you may have the goodness to afford me, regarding the result, will be highly acceptable*."

My good intentions, I am happy to say, were met with that spirit of cordiality, which might have been expected from Dr. Cheek's known liberality; and the result has been the annexed schedule, containing the histories of 103 cases of Cholera Morbus, 74 of which were treated with the emetic remedy—a document, which, in my opinion, is not inferior in interest and importance to any, which has yet been given to the public, connected with this subject.

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* Copies of this letter and of the case alluded to, were at the same time furnished to several other medical officers.

Report of Cholera cases treated in the Bancoorah Hospital, from the 1st of March, to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
1.	Dussarut Hurree; aged 30.	1st March, 12 noon.	Cold clammy sweat, spasms of extremities, voice gone, eyes sunk, had since admission five stools, and vomited three times, thin congee stuff from the stomach, ejections clear as water.	Hot dry cloths to the bowels and extremities, scruple doses of Calomel, with ʒi. of Tincture of opium, and 20 drops of peppermint; after taking one dose, he sank rapidly, and could not swallow even any liquid.	1st March, 12 P. M.	
2.	Surroop Bowrie; aged 45.	2nd March, 8 A. M.	No pulse to be felt at the wrist, spasms of the extremities—eyes sunk, had frequent evacuations, vomited repeatedly—two evacuations as clear as water, afterwards tinged with feculent matter.	Hot dry cloths to abdomen and the extremities, Calomel in Scruple doses, with Laudanum and peppermint continued till symptoms abated.		Convalescent on the 5th, discharged on the 13th.
3.	Bunsee Seraie; aged 40.	8th March, 4 P. M.	This man had been in Hospital since 3rd July, with ulcer of the leg, when seized, the ulcer was nearly healed—had eight stools, and vomited nine times, appearance clear water—no pulse—thirst exces-	Hot dry cloths to be applied, a blister to the stomach. Tinct. opii ʒ i. æther ʒ i. Brandy ℥ i. to be given in small quantities, as the stomach will bear—no change for the better. R. Calomel gr. xii. Camph. gr. iii. opii gr. i. ol. Menth. gtts. iii.	11th March, 1 P. M.	

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1*st of March, to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
			sive, eyes sunk, voice scarcely to be heard, region of stomach very hard and painful —he is very low indeed.	to be continued, till symptoms abate—evacuations, &c. ceased, on the 9th; tension of abdomen—R. Calomel gr. iii. Ipecac. gr. ii aloes gr. iii. opium gr. iss. to be taken every hour—10th, had one or two slight motions, continues very ill. Rept. med. Evidently sinking—could not swallow his medicine.	11th March. 1 P. M.	
4.	Sonatun Kooloo; aged 48.	11th March, 2 P. M.	This man was admitted with fever, and ulcer of the leg, on the 17th January last, had taken considerable quantities of calomel—had a sore mouth, from which he was recovering, when seized—his pulse was scarcely to be felt—spasms—eyes sunk, voice gone —11 dejections and frequent vomiting of a clear watery appearance.	Hot dry cloths—scruple doses of calomel with ʒ i. Tinct. opii and xx. drops of peppermint—took two doses—very low indeed—the calomel discontinued—ʒ i. Tinct. opii. and xx. gtts. of peppermint given and small doses of spir: ammon: aromat: *c* Mist. Camph: frequently given—nothing would check the severity of the symptoms, or rouse him from the comatose state.	15th March. 4 P. M.	

5.	Saun Booyea; aged 40.	12th March, 4 P. M.	Pulse very low—thirst excessive—spasms of hands and feet—voice scarcely to be heard—cold clammy sweat—great pain of abdomen—frequent stools and vomiting of a clear watery appearance.	Hot dry applications—blister to the abdomen—scruple doses of Calomel with ʒ i. Tinct. Opii and Peppermint continued till symptoms abated, when Spir. Ammon. Aromat. *c.* mist camph. was given at small doses.		Convalescent.
6.	Petumber Missur; aged 45.	14th March, 11 A. M.	Had before admission several stools, with severe vomiting, —spasms of hands and feet —voice low—no pulse—thirst excessive—the evacuations since admission like clear water.	Attempted to bleed; could only obtain about two ounces of a black tar appearance—hot dry cloths applied to the abdomen and extremities —scruple doses of Calomel, Peppermint and Laudanum—congee water allowed to allay thirst—he sank rapidly.	14th March, 11 P. M.	
7.	Rajoo Joomer; aged 35.	14th March, 11 A. M.	Eight evacuations—thrice vomited—cold and clammy sweat—spasms of hands and feet—no pulse; voice very low—eyes sunk in their sockets.	Hot dry cloths to be applied to the abdomen and extremities, scruple doses of Calomel and 60 drops of Laudanum and 20 drops of Peppermint; this was continued till one drachm and 15 grains of Calomel and 4 drachms of Laudanum had been taken—the purging and vomiting ceased, but he remained very low—Camphor	15th March, 12 noon.	

Report of Cholera cases treated in the Bancoorah Hospital, from the 1st of March, to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
				mixture with Spir. Am. Arom. was given in small repeated doses, without any advantage.		
8.	Sunkee Boonish; aged 45.	19th March, 2 P. M.	Had nine stools, and vomited seven times, of a clear watery appearance—no pulse; eyes sunk; no voice, spasms very severe; had been in Hospital with an ulcer of the leg, since 19th November, from which he was recovering; great thirst; cold clammy sweat.	Hot dry cloths to be applied constantly to the abdomen and extremities; scruple doses of Calomel with Laudanum to be given, and repeated till symptoms abate; the remedies had not the desired effect, and he rapidly sank.	17th March, 12 M.	
9.	Suroop Senew; aged 35.	16th March, 4 P. M.	Had eight stools; vomited six times, cold sweats, spasms of hands and feet, no voice; eyes sunk in their sockets; no pulse perceptible at the wrist; thirst excessive.	Hot dry cloths to be applied constantly to the abdomen and extremities, scruple doses of Calomel with Laudanum to be given and repeated, till symptoms abate—the remedies had not the desired effect, and he rapidly sank.	17th March. 12 M.	

10.	Barsee Buctee; aged 35.	17th March, 12 noon.	Had five stools, and severe vomiting of a clear watery appearance, cold sweat; spasms severe, pulse slightly to be felt; voice gone—eyes sunk in their sockets; severe pain in the abdomen.	Apply hot-water in bottles to the feet, dry hot clothes to the abdomen. Apply a blister to region of stomach—scruple doses of Calomel with Opium and Peppermint. He sank very rapidly. The medicines appeared not to be of the slightest use.	17th March, 6 P. M.
11.	Bhood Ram; aged 38.	17th March, 10 P. M.	Severe purging and vomiting of a clear watery appearance, no pulse—eyes sunk, cold and clammy perspiration—severe spasms.	Treated with scruple doses of Calomel, Laudanum, and Ol. Menthæ pip. The medicines did not in the least alleviate the symptoms, and he sank rapidly. Hot cloths constantly applied to the abdomen, and extremities.	18th March, 7 A. M.
12.	Bupar Boonyar; aged 40.	18th March, 7 A. M.	Severe purging and vomiting of a clear watery appearance; cold clammy sweat; spasms, no voice; eyes sunk; much exhausted.	Hot bath, Calomel in scruple doses with Tinct. Opii and Peppermint. After taking two doses of the above, as he was worse, ordered nitrous acid, 15 drops, in two drachms of Camphor mixture—he took two doses of the acid; hot dry cloths applied, and a mustard poultice to abdomen.	19th March, 1 P. M.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March, to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
13.	Goobrud Boyar; aged 55.	18th March, 7 A. M.	Severe vomiting and purging of a clear watery appearance—cold clammy sweat—severe spasms—no voice—eyes sunk—much exhausted.	Hot bath—hot cloths applied to the abdomen and extremities—scruple doses of Calomel, with 60 drops of Laudanum and Peppermint. After two doses, which had not any effect, give Nitrous Acid gtts. xv. in Aq. Camph. ʒ ii. At one time the medicine appeared to have been of service; he however gradually sank and expired.	18th March, 10 P. M.	
14.	Collychurn Boycar; aged 38.	18th March, 9 A. M.	Severe vomiting and purging—scarce any pulse—spasms severe—clammy sweat—eyes sunk—voice very low—evacuations as clear as water.	Hot bath—hot cloths to the abdomen and extremities, with a scruple of Calomel, 60 drops of Laudanum and 20 of peppermint—appears much worse and sinking—ordered the nitrous acid gtts. xv. for a dose—this was continued, till he had taken ʒ i., without any lessening of the symptoms.	22nd March, 6 A. M.	

15.	Sawpill Mullick; aged 50.	18th March, 6 A. M.	Severe purging and vomiting of a clear watery fluid—no pulse—voice scarcely to be heard—spasms—eyes sunk—great thirst.	Hot bath—hot cloths applied to the abdomen and extremities. This patient was strictly treated on Mr. Searle's plan, as handed through the Secretary to the Medical Board.	19th March 6 A. M.
16.	Ayhett Mahomed; aged 45.	18th March, 8 P. M.	Severe purging and vomiting of a clear watery fluid—very cold and deadly sweat—no pulse—voice gone—eyes sunk—great thirst. This man had been in Hospital with Dysentery since 28th February, and was recovering from a sore mouth when seized.	Hot bath—hot cloths to the abdomen and extremities. Give him Calomel gr. xv. Tinct. Opii gtts. lx. Ol. Menth. pip. gtts. xx.; afterwards the Nitrous Acid in Camphor mixture was tried, without any good effect, though the symptoms appeared at one time to be a little less—at next visit he was altered much for the worse, and Spir. Ammon. Aromat. in small doses was given.	21st March. 6 A. M.
17.	Rampersaud Dhom; aged 28.	19th March, 7 A. M.	Pulse scarcely perceptible—deadly cold perspiration—violent spasms—voice gone, and eyes sunk, with severe purging and vomiting of a clear watery fluid. Thirst excessive.	Hot bath—and hot cloths applied to the extremities—in other respects carefully treated after Dr. Searle's plan, as handed by the Medical Board.	21st March. 12 noon.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1*st of March, to the* 12*th of May,* 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
18.	Rutton Boornish.	19th March, 7 A. M.	No pulse—eyes sunk—deadly cold perspiration—spasms great—voice gone—severe purging and vomiting of a clear watery fluid.	Hot bath—hot cloths to the abdomen and extremities. The treatment was then strictly on Dr. Searle's plan with Muriate of Soda.	20th March, 11 P. M.	
19.	Nubbeer Hurree.	19th March, 7 A. M.	No pulse—cold clammy sweat—spasms—voice a little faltering—severe purging and vomiting of a clear watery fluid—thirst considerable.	Hot bath—venesection to ℥ xii, blood of a black ropy appearance—afterwards Dr. Searle's plan with Muriate of Soda was followed.	. .	21 March, Convalescent.
20.	Manut Tanhe.	19th March, 11 A. M.	Severe vomiting and purging—no pulse—cold clammy sweat—spasms severe—eyes sunk—voice gone.	Hot bath, afterwards carefully treated according to Dr. Searle's plan, till three ounces and three drachms had been administered—the symptoms considerably abated. On the 20th March, was seized with hickup, and was in the most exhausted state. Small doses of æther and Camphor were occasionally given—pulse very low, and scarcely to be felt—he is evident-	25th March, 11 A. M.	

				ly sinking. Give Sp. Ammon. Aromat. *c.* Mist. Camph. occasionally.		
21.	Harroo Rae.	20th March. 12 noon.	Severe vomiting and purging—cold clammy sweat—no pulse to be felt—spasms very severe—eyes sunk—voice natural.	Hot bath—venesection to ℥ vi., no more could be obtained. The Muriate of Soda was tried in this case, but no good derived from it—P. M. appears nearly gone—give him a scruple dose of Calomel with Tinct. Opii et Ol. Menth. pip. gtts. xx.—after a short time there was great improvement—he is weak, but the purging, &c. have ceased—give Spir. Ammon. Arom. *c.* Mist. Camph. occasionally.	..	22 March, Convalescent.
22.	Rasoo Kewah; aged 40.	22d March, 6 A. M.	Severe purging and vomiting—no pulse—great perspiration—deadly cold—eyes sunk, voice is scarcely to be heard—spasms of feet and hands, very great thirst.	Hot bath—attempted to bleed, but no blood could be drawn. This man was treated exactly after the plan of Dr. Searle, as handed through the Superintending Surgeon.—As the symptoms did not abate, one dose of a scruple of Calomel and Opium was given without effect.	23rd March. 6 A. M.	

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
23.	Badoor Boornish; aged 35.	22nd March, 4 P. M.	Had several stools, with vomiting of a watery fluid—no pulse—eyes sunk—scarce any voice—spasms of extremities, with a cold deadly sweat.	Hot bath—apply Nitric Acid to the region of the stomach. Afterwards treated on Mr. Searle's plan.	23rd March, 6 A. M.	
24.	Bennuel Boyear; aged 50.	22nd March, 6 P. M.	Had several stools, with very severe vomiting of a watery fluid—no pulse—eyes sunk—voice gone—spasms of extremities.	Hot bath—attempted to bleed, succeeded in obtaining four ounces of dark blood, afterwards treated after Dr. Searle's plan.	25th March.	
25.	Bowanny Sing; aged 38.	23rd March, 4 P. M.	Severe purging and vomiting of a watery appearance—pulse very low—spasms of hands and feet—eyes sunk—voice not to be heard—perspiration great—cold and clammy. This man had been ill in Hospital since 3rd December last.	Hot bath—give scruple doses of Calomel with Tinct. Opii gtts. 60, Ol. Menth. pip. gtts. xx. After taking two doses, he sunk so low, that the Calomel was omitted, and small doses of Spir. Ammon. Aromat. *c.* Mist. Camph. was occasionally given.	25th March, 6 P. M.	

	Achloo Mangee.	23rd March, 6 P. M.	Had several stools, with severe vomiting of a clear watery fluid—pulse scarcely to be felt,—great perspiration—spasms severe—great thirst—eyes sunk.	Hot bath—bled to ℥ viii. no more could be obtained—give Tartar Emetic, in one grain doses—repeat this twice, afterwards give Emetic Tartar in smaller doses—five grains in all were taken—no abatement of symptoms—give Calomel gr. xx. Tinct. Opii gtts. lx. Ol. Menth. pip. gtts. xx.—one hour after, give ʒ ii. of Carb. of Magnesia *c* gtts. xx. of Peppermint. The purging and vomiting ceased, when Spir. Am. Aromat. was given.	..	Convalescent.
27.	Goar Rajewar.	24th March, 6 A. M.	Admitted with violent purging and vomiting of a clear watery appearance—no pulse, cold deadly perspiration, with severe spasms, eyes sunk, and voice gone.	Hot bath—attempted to bleed, but without success—give him one grain of Emetic Tartar every half hour—took three grains, afterwards ¼ of a grain of Emetic Tartar every hour—in this shape he took 3¼ grains more—no abatement of symptoms—give him a dose of Calomel.	25th March, 12 Noon.	

Report of Cholera cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12th *of May,* 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
28.	Anund Bowrie.	26th March, 6 A. M.	Severe purging and vomiting—no pulse—spasms of extremities—eyes sunk—voice natural.	Hot bath—bled to ℥ viii.—give him an Emetic *c* gr. i. Ant. Tart. and gr. xx. Pulv. Ipecac.—vomited thrice—give Calomel gr. xx. *c* Tinct. Opii et Ol. Menth. pip. gtts. xx.—Calomel repeated three times—all symptoms abated—give Sps. Am. Aromat. *c* Mist. Camph. occasionally.	..	Cured.
29.	Doorga Boornish.	26th March, 3 P. M.	Admitted with severe vomiting and purging of a clear watery fluid—pulse low—cold clammy sweat—voice gone—eyes sunk—he is much exhausted with pain.	Hot bath—attempted to bleed—no blood could be drawn—give an Emetic as in case 28, and after it has operated, give scruple doses of Calomel and Opium *c* Pep. took three doses of Calomel, when all symptoms abated—afterwards Spir. Ammon. Arom. *c* Mist. Camph. occasionally, in small doses.	..	Cured.

30.	Soobul Tatee.	26th March, 6 P. M.	Severe purging and vomiting of a clear watery fluid—no pulse—spasms—no voice—eyes sunk—great perspiration—cold clammy sweat.	Hot bath—and bled to eight oz.—blood black tar-looking stuff—no more could be obtained—give the Emetic with gr. i. of Emetic Tartar and gr. xx. of Pulv. Ipecac.; after it operated, scruple doses of Calomel, Op. and Pep. These were repeated four times, when all bad symptoms subsided, and small doses of Spir. Ammon. Aromat. completed the cure.	..	Cured.
31.	Mannt Bazaur.	27th March, 6 A. M.	Admitted with severe purging and vomiting—no pulse—spasms great—cold and clammy sweat—eyes sunk—and voice gone—great thirst.	Hot bath—no blood could be drawn—give the Emetic as in case 30, afterwards scruple doses of Calomel with Tinct. Opii and Peppermint, till symptoms abate; when, give Spir. Ammon. Aromat. c Mist. Camph. in small doses.	..	Cured.
32.	Luckoo Boornish.	27th March. 6 P. M.	Admitted with severe purging and vomiting of a clear watery fluid—pulse very low—great perspiration—spasms great—voice gone, and eyes sunk—great thirst.	Hot bath—venesection to ℥ x.—hot dry cloths to be constantly applied—give an Emetic as in case 31, afterwards scruple doses of Calomel, Tinct. Opii and Peppermint—took three doses, when all bad symp-	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
				toms abated. Give him Sp. Am. Arom. *c* Mist. Camphoræ occasionally.		
33.	Bally Boornish.	28th March, 7 P. M.	Violent purging and vomiting of a clear watery fluid—pulse scarcely to be felt—cold clammy sweat—voice gone,—eyes sunk, and great thirst.	Hot bath—venesection to eight ounces—give the Emetic, afterwards scruple doses of Calomel, &c.—hot dry cloths to be constantly applied—took three doses of Calomel, &c. when the severe symptoms abated, and small doses of Spir. Ammon. Arom. *c* Mist. Camph. were given occasionally.	. .	Cured.
34.	Thisha Boornish.	28th March, 10 P. M.	Violent purging of a clear watery fluid—pulse scarcely to be felt—eyes sunk—great perspiration—cold and clammy—severe spasms—thirst great—voice gone.	Hot bath—and afterwards hot dry cloths to be constantly applied—give gr. i. of Ant. Tartar, Pulv. Ipecac. gr. xx.—after the operation, give scruple doses of Calomel, Opium, and Peppermint—three doses were administered, when all danger abated. Give Sp. Ammon. Arom. in small doses.	. .	Cured.

35.	Munsa Tatee.	29th March, 6 P. M.	Violent purging, and vomiting of a clear watery fluid—no pulse — voice gone — eyes sunk — great perspiration, cold and clammy—severe spasms—thirst great.	Hot bath—venesection to ℥ vi.—no more could be got—of a black tar appearance—give the Emetic, afterwards scruple doses of Calomel, Tinct. Opii. and Peppermint—three doses of the above were given, when all bad symptoms subsided—give Spir. Ammon. Arom. *c* Mist. Camph. occasionally.	. .	Cured.
36.	Gora Boornish.	30th March, 5 P. M.	Violent purging and vomiting of a clear watery fluid—no pulse—deadly cold perspiration—spasms severe—eyes sunk, and voice gone. Thirst great.	Hot bath—attempted to bleed--could only get two ounces of a dark ropy tar appearance—hot cloths dry to be constantly applied—give an Emetic ; after it had operated, scruple doses of Calomel, Opium, and Peppermint were ordered. He sank in two hours.	30th March, 11 night.	
37.	Lall Boornish.	31st March, 6 A. M.	Severe purging and vomiting —pulse scarcely to be felt—cold clammy perspiration—severe spasms—eyes sunk and voice gone—thirst excessive.	Hot bath—venesection to ℥ viii.—blood drawn very black—apply dry hot cloths constantly—give Emetic *c* Ant. Tartar, gr. i. et Pulv. Ipecac. gr. xx.—Emetic did not operate, repeat it—vomited twice—give scruple doses of Calomel, Opium, and Peppermint—took three	. .	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1*st of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
				doses, when all symptoms suddenly abated—give Spir. Ammon. Aromat. occasionally.		
38.	Dooheram Bonyer.	31st March, 5 P. M.	Severe purging and vomiting of a watery fluid, clear as water—no pulse—cold deadly sweat—spasms great—eyes sunk and voice gone—thirst great.	Hot bath—attempted to bleed—℥ ii. could only be obtained—give an Emetic; after he had twice vomited, give scruple doses of Calomel, Opium, and Peppermint—no abatement of symptoms, and he sank, in six hours, after the attack.	31st March, 11 P. M.	
39.	Sebaleech.	31st March, 8 P. M.	Severe purging, and vomiting—pulse scarcely to be felt—spasms of hands and feet—cold clammy sweat—voice gone—eyes sunk—complains sadly of thirst.	Hot bath—venesection to ℥ viii.—no more could be obtained—apply hot dry cloths constantly—give an Emetic—after it had operated, scruple doses of Calomel with ʒ i. Tinct. Opii et gtts. xx. Ol. Menth. pip. were given—the above were repeated three times, when all bad symptoms abated, and Spir. Ammon. Arom. was occasionally given.	. .	Cured.

40.	Saun Thoormie.	31st March, 9 P. M.	Severe purging and vomiting—no pulse—perspiration great—appears dreadfully exhausted—spasms severe—eyes sunk — voice gone — great thirst.	Hot bath—could not bleed him—give an Emetic—after it had operated, give scruple doses of Calomel, Tinct. Opii and Peppermint—took two doses of the above; but died three hours after admission.	31st March, 12 night.
41.	Bahadoor Goosee.	31st March, 8 P. M.	Had seven stools, and vomited five times, of a watery fluid—no pulse—sweat intense—spasms severe—eyes sunk—voice gone.	Hot bath—attempted to bleed—only ℥ ii. could be abstracted, like black tar—apply hot dry cloths constantly—give an Emetic; after it has operated, scruple doses of Calomel, &c. two doses of the above given. Died three hours after admission.	31st March 11 P. M.
42.	Ruckun Boornish.	31st March, 11 P. M.	Severe purging and vomiting of clear water—no pulse—great perspiration—spasms severe—eyes sunk, and voice gone,—thirst great.	Hot bath—attempted to bleed—only ℥ ii. could be obtained, of a black tar-like appearance—apply hot dry cloths—give an Emetic—after operation, give scruple doses of Calomel, Opium, and Peppermint,—the above was twice repeated, when he could swallow nothing more.	1st April, 1 A. M.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May,* 1832.

No	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
43	Selaghee Berone.	1st April, noon.	Severe purging, and vomiting of clear watery stuff—pulse very low, with spasms of extremities—great perspiration—cold and clammy—eyes sunk—voice gone—thirst excessive.	Hot bath—attempted to bleed—could only obtain ℥ vi. of a black tar like appearance—scruple doses of Calomel with a ʒ i. Tinct. Opii et gtts. xx. Ol. Menth. pip.—hot dry cloths applied constantly to the abdomen and extremities. This patient took three doses of Calomel, &c. when all bad symptoms abated, and small doses of Spir. Ammon. Arom. completed the cure.	..	Cured.
44.	Goorhoo Mahaton.	1st April, 5 P. M.	Severe purging, and vomiting of a clear watery fluid—great perspiration—no pulse—eyes sunk—voice gone—thirst excessive—spasms violent.	Hot bath—only ℥ ii. of blood could be drawn—hot dry cloths to the abdomen and extremities—scruple doses of Calomel *c* Tinct. Opii ʒ i. et Ol. Menth. pip. gtts. xx.—took three doses of the above, and after the first dose, ʒ iii. of Carb. Magnesia—the medicine did not check the symptoms in the least, and he sank rapidly, and lay in a comatose state nearly two days.	4th April.	

45.	Saheb Ram.	1st April, 6 P. M.	Severe purging and vomiting —severe spasms—no pulse —eyes sunk—voice gone—great perspiration—deadly cold and clammy — great thirst—complains of severe pain in the abdomen.	Hot bath—apply a mustard poultice to the stomach—could only get three oz. of blood, of thick black tar-like stuff—hot dry cloth constantly applied—scruple doses of Calomel *c* Tinct. Opii ʒ i. et Ol. Menth. pip. gtts. xx.—took three doses, but without any good effect.	2nd April. 7 P. M.	
46.	Gumboo Mahatoo.	2nd April, mid-night.	Severe purging and vomiting of a clear watery fluid—no pulse—spasms violent—perspiration very great—eyes sunk — voice gone — great thirst.	Hot bath—could only obtain ʒ vi. of blood, like tar—hot dry cloths to be constantly applied—give an Emetic of Emetic Tartar and Pulv. Ipecac.—after it has operated, scruple doses of Calomel, Tinct. Opii ʒ i. et Ol. Menth. gtts. pip. xx. —took 3 doses, when all bad symptoms abated, and Spir. Ammon. Arom. *c* Mist. Camphoræ was given.	..	Cured.
47.	Basett Majee.	2nd April, mid-night.	Severe purging and vomiting — pulse low — perspiration great—spasms—eyes sunk —voice gone—great thirst—	Venesection ad ʒ x.—apply mustard poultice to abdomen—Emetic, afterwards R. Calomel gr. xx. *c*. Tinct. Opii gtts. c.—after the Calomel	..	Cured.

Report of Cholera cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
			complains of severe pain in the abdomen.	give ʒ iv. Magnesia. Alb. The Calomel was repeated three times, when he rapidly recovered, and was discharged.		
48.	Sadoo Gurroo.	2nd April.	Severe purging and vomiting of a clear watery fluid—pulse not be felt—spasms great—perspiration profuse—eyes sunk—voice gone—great thirst—pain in the abdomen.	Hot bath—venesection attempted—only two ounces of black tar-like stuff could be obtained—mustard poultices to the feet and abdomen—hot dry cloths applied constantly—give gr. i. Ant. Tartar *c* gr. xx. Pulv. Ipecac.—after operated, give scruple doses of Calomel *c* Tinct. Opii ʒi. et Ol. Menth. pip. gtts. xx.—wash this down with ʒiii. Magnesia Carb.—he took three doses of the Calomel, and two doses of Magnesia—the bad symptoms did not subside, and he sank.	2nd April, 12 noon.	
	Durma Barnie.	2nd April, 12 noon.	Severe purging and vomiting—no pulse, discharges a clear watery appearance, excessive	Hot bath—bled, but could only get six oz. of blood of a black tar-like appearance—hot cloth appli-	. .	Cured.

			sweat—spasms violent—eyes sunk, and voice gone—great thirst.	ed constantly—give Emetic as in case 47, and afterwards ℈ i. of Calomel, ʒ i. Tinct. Opii and gtts. xx. Ol. Menth. pip.—after one dose of Calomel, give ʒ iii. Magn Alb.—took three doses of Calomel and one of Magnesia, and all bad symptoms left him.		
50.	Hurree Boyer.	2nd April, 12 night.	Severe purging and vomiting —pulse scarcely to be felt—perspiration great, spasms of hands and feet—eyes sunk, voice gone—thirst great.	Hot bath—venesection ad ℥ x.—give Emetic—apply hot dry cloths constantly—give ℈ i. Calomel, ʒ i. Tinct. Opii, et gtts. xx. Ol. Menth. pip.—wash this down with ʒ iii. Magn. Alb.—took three doses of the Calomel and one of Magn. and quickly recovered.	..	Cured.
51.	Calul Boornish.	3rd April, 6 A. M.	Severe purging and vomiting —no pulse—cold sweat—spasms violent—eyes sunk—voice gone—great thirst.	Hot bath—no blood could be drawn —Emetic given, but did not operate—℈ i. Calomel, Tinct. Opii ʒ i. Ol. Menth. pip. gtts. xx., afterwards ʒ iii. Mag. Alb. This man took three doses of Calomel and one of Magn. but sank rapidly.	3rd April. 8 P. M.	

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
52.	Gunga-ram Raj-poot.	3rd April.	Severe purging and vomiting —no pulse—cold sweat—voice natural—eyes sunk, he is much exhausted.	℈ i. Calomel, Tinct. Opii ʒ i. Ol. Menth. pip. gtts. xx. afterwards ʒ iii. of Magnesia—took three doses of Calomel as above, and one of Magnesia, when he improved rapidly.	. .	Cured.
53.	Aeem Sing.	3rd April, 7 A. M.	Severe purging and vomiting —no pulse—cold sweat——spasms great, eyes sunk—no voice—thirst excessive.	Hot bath—no blood could be drawn—Emetic was given, afterwards scruple doses of Calomel, Opium and Peppermint, washed down with ʒ iii. Magn. Three doses of Calomel, and one of Magn. taken, but of no avail.	3rd April, 9 P. M.	
54.	Maugee Hafut.	3rd April, 12 noon.	Severe purging and vomiting —no pulse could be distinguished at the wrist—spasms severe, eyes sunk, voice gone —great thirst.	Hot bath—venesection ad ℥ viii.—give the Emetic, after its operation, Calomel gr. xx. Tinct. Opii ʒ i. Ol. Menth. pip. gtts. xx. washed down with ʒ iii. Magn. This patient took three doses of Calomel, &c. and two doses of the Magnesia, when he rapidly recovered.	. .	Cured.

55.	Subnauth Sing.	3rd April, 11 A. M.	Severe purging and vomiting—no pulse—cold sweat—spasms great—eyes sunk—voice gone—excessive thirst.	Hot bath—with great difficulty ʒ vi. of blood were drawn—give an Emetic, afterwards Calomel ℈ i Tinct. Opii ʒ i. Ol. Menth. pip. gtts. xx. washed down with ʒ iii of Magn. Three doses of Calomel taken, and one of Magnesia, without any effect.	..	
56.	Bygaun Sing.	3rd April, 12 noon.	Severe purging and vomiting—pulse scarcely to be felt—cold clammy sweat—spasms of hands and feet—eyes sunk—voice not to be heard.	Hot bath—hot dry cloths to be constantly applied—venesection ad ℥ viii.—black tar-like stuff—give Emetic, after operation scruple doses of Calomel, with gtts. c. of Tinct. Opii and Ol. Menth. pip. gtts. xx. to be washed down with ʒ iii. of Magnesia in an oz. of water. Two doses of Calomel and 60 drops of Laudanum was given. This patient took three doses of Calomel, &c. one dose of Magnesia, when all medicine except Spir. Ammon. Arom. was discontinued.	..	Cured.
57.	Chyn Boornish.	3rd April, 12 noon.	Symptoms as in 56, complains of severe pain of scrobiculus cordis.	Hot bath and hot cloths—mustard poultice to the abdomen—venesection ad ℥ viii. of a black tar-like	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
				appearance—give Emetic, afterwards ℈ i. Calomel, Tinct. Opii gtts. c. Ol. Menth. pip. gtts. xx. wash down with ʒ iii. Magnesia, after one dose only 60 drops of Laudanum was given. This man took two doses of Calomel and Laudanum, one do. of Magnesia, and all bad symptoms abated.		
58.	Dundo Mahatoo.	3rd April, 12 noon.	Symptoms similar to the above.	Hot bath and hot dry cloths applied —venesection—no more than ℥ vi. could be drawn—mustard poultice to the abdomen—give Emetic, afterwards give Calomel ℈ i. Tinct. Opii gtts. c. Ol. Menth. pip. gtts. xx. with ʒ iii. of Magnesia—2nd dose only—ʒ i. Tinct. Opii. Took three doses of Calomel, two do. of Magnesia, and quickly recovered.	..	Cured.

59.	Chundra Boornish.	4th April, 1 P. M.	Symptoms similar to the above.	Hot bath—hot dry cloths applied—venesection ʒ viii.—give Emetic, after operation, ℈ i. Calomel, Tinct. Opii gtts. c. Ol. Menth. pip. gtts. xx. with ʒ iii. Magnesia; after one dose, only 60 drops of Laudanum. This man took two doses of Calomel, and three of Magn. when all bad symptoms abated.	..	Cured.
60.	Doorkey Boyear.	4th April, 2 P. M.	Severe purging and vomiting with spasms,—excessive cold sweat, — eyes sunk — voice gone, severe pain in abdomen —no pulse at the wrist—thirst.	Hot bath—venesection ad ℥ vi.—no more could be drawn, what was obtained was like tar—apply constantly hot dry cloths and a mustard poultice to the abdomen —give Emetic, afterwards ℈ i. Calomel, Tinct. Opii gtts. c. c Ol. Menth. pip. gtts. xx. then ʒ iii. of Magnesia Alb. 2nd dose, ℈ i. Calomel, Tinct. Opii gtts. lx.—took two doses of Calomel, &c. and two doses of Magnesia, when all bad symptoms abated.	..	Cured.
61.	Madram Majee.	4th April, 3 P. M.	Symptoms as in case 60, with the exception that pulse was to be felt,	Hot bath—venesection ad ℥ viii. hot cloths constantly applied—apply mustard poultice—give	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
				Emetic, after operation ℈ i. Calomel, Tinct. Opii gtts. c. Ol. Menth. pip. gtts. xx. misce—wash down with ʒ iii. Magn. Alb. This patient took four doses of the Calomel, &c.—2nd dose, ℈ i. Calomel and Tinct. Opii gtts. lx. and five doses of Magnesia—symptoms abated.		
62.	Jadoo Byp.	4th April, 7 P. M.	Symptoms as above, except he was much colder—pulse a little to be distinguished.	Hot bath—hot cloths to be applied instantly—mustard poultice to abdomen—venesection ad ℥ x.—blood black, tar appearance—give Emetic, afterwards ℈ i. Cal. Tinct. Opii gtts. c. Ol. Menth. pip. gtts. xx. et Magn. Alb. ʒ iii.—had three doses of Calomel, &c.—2nd dose, 60 drops of Tinct. Opii, and three of Magnesia.	. .	Cured.

63.	Golal Boornish.	4th April, 7 P. M.	Symptoms as above.	Hot bath—venesection—could only get four ounces of black tar-looking stuff—give Emetic—afterwards Calomel ℈ i. Tinct. Opii gtts. c. Ol. Menth pip. gtts. xx.—wash down wih ʒ iii. Magn. Alb.—took four doses of Calomel, (2nd dose 60 drops of Tinct. Opii,) and two doses of Magnesia, when all bad symptoms abated.	..	Cured.
64.	Sunker Boornish.	4th April, 7 A. M.	Severe purging and vomiting, pulse scarcely to be felt—excessive cold sweat—spasms—voice fluttering—eyes sunk in their sockets—great thirst and severe pain in scrobiculus cordis.	Hot bath—venesection ad ʒ viii.—of a black tar-like appearance—hot cloths constantly applied—mustard poultices to the abdomen—give Emetic *c.* gr. i. Emet. Tart. et Pulv. Ipec. gr. xx.—after operation—℈ i. Calomel *c* gtts. c. Tinct. Opii et ʒ iii. Magn. Alb.—took three doses of Calomel, &c. and two of Magnesia.	..	Cured.
65.	Ramchunder Chund.	5th April, 11 A. M.	Symptoms as above—excepting his voice was natural, and no pain in abdomen.	Hot bath—venesection ad ℥ x. dark black tar-like stuff—apply hot dry cloths—give Emetic—afterwards ℈ i. Calomel *c* Tinct. Opii	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
				gtts. c. et Magn. ʒ iii.—took four doses of Calomel, and also three of Magnesia.		
66	Thoodoo Boornish.	5th April, 1 A. M.	Symptoms as in case 65—with the aggravation of no pulse—voice gone—great pain in abdomen.	Hot bath—could only get ℥ v. of blood black as tar—mustard poultice to abdomen, and hot dry cloths—give Emetic—afterwards ℈ i. of Calomel, Tinct. Opii gtts. c. *c* Magn. Alb. ʒ iii.—took three doses of Calomel, and two doses of Magnesia.	..	Cured.
67.	Boli Gualier.	5th April, 11 A. M.	Symptoms exactly similar to case 66.	Hot bath—venesection ad ℥ vi. no more could be obtained—quite black as tar—apply mustard poultice, and hot dry cloths—give Emetic—after, as it did not operate, give 1 gr. Emetic Tartar again—afterwards ℈ i. Calomel, Tinct. Opii gtts. c. *c* Magn. Alb. ʒ iii.—took three doses of Calomel, and three of Magnesia.	..	Cured.

	Soondea Boornish.	5th April, 12 noon.	Severe purging and vomiting—pulse not to be felt—great perspiration and deadly cold—spasms severe—voice not to be heard — eyes sunk — great thirst—Tongue nearly black, severe pain in abdomen.	Hot bath—venesection ad ℥ iv. no more could be drawn—as black as tar—apply hot dry cloths and mustard poultice—give an Emetic—no effect—repeat gr. i. Emet Tart.—no effect, repeat again gr. i. Emet. Tart.—operated four times—give ℈ i. Calomel, Tinct. Opii gtts. c. *c* Magn. ʒ iii. This patient took five doses of Calomel, and three doses of Magnesia.	..	Cured.
69.	Doomun Mora.	6th April, 8 A. M.	Severe purging and vomiting—pulse a little to be felt, and tongue a little dry—great perspiration,—deadly cold—spasms—eyes sunk in sockets—pain in abdomen, and great thirst.	Hot bath—bled to ℥ viii.—hot dry cloths constantly applied—give Emetic Tartar gr. i. *c*—Pulv. Ipecac. gr. xx.—operated twice—give Calomel ℈ i. Tinct. Opii gtts. c. et Magnesia Alb. ʒ iii.—This patient took Calomel, &c. three times, likewise Magnesia the same number.	..	Cured.
70.	Thoodee Boornish.	6th April, 8 A. M.	Symptoms as above—pain in abdomen.	Hot bath—could only get v. oz. of blood, black as tar—apply mustard poultices to abdomen—give the Emetic—no effect—Repet. Emet. Tart. gr. i.—vomited twice—after-	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
				wards give Calomel ℈i. Tinct. Opii gtts. c. *c* Magn. ʒ iii.—took four doses of Calomel, &c. two ditto of Magnesia.		
71.	Mohummee Singh.	7th April, 7 A. M.	Symptoms as above—but not the slightest pulse to be felt at the wrist.	Hot bath—attempted to bleed in both arms, and only got ii. oz. of dark black blood—apply mustard poultices to abdomen and feet—hot dry cloths to be constantly used—give Emetic—afterwards Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia ʒ iii.—took two doses of Calomel, &c. and two doses of Magnesia.	7th April, 11 A. M.	
72.	Moonshee Rai.	7th April, 7 A. M.	Severe purging and vomiting—of a clear watery fluid—pulse scarcely to be felt—spasms severe—pain in abdomen—great perspiration—eyes sunk—voice gone--thirst excessive.	Hot bath—venesection—only four oz. could be obtained—of a black tar appearance—hot dry cloths to be applied constantly—mustard poultices to abdomen and feet—give Emetic—afterwards ℈ i. Calomel Tinct. Opii gtts. c. *c* Mag-	. .	Cured.

				nesia ʒ iii.—This patient took three doses of Calomel, also two ditto of Magnesia Alb.		
73.	Thoodoo Boornish.	9th April, 6 P. M.	Symptoms exactly like 72—with the exception of no pulse.	Hot bath—could only get ℥ iss. of blood—of black tar stuff in appearance—mustard poultices to abdomen and feet—give Emetic—afterwards Calomel ℈ i. et Tinct. Opii gtts. C. *c* Magn. ʒ iii.—this patient took three doses of Calomel, &c. and two doses of Magnesia Alb. without any abatement of symptoms.	9th April, 12 night.	
74.	Duntoo Mora.	9th April, 8 P. M.	Symptoms very violent as above—no pulse.	Hot bath—venesection ad ℥ viii. apply hot cloths—also mustard poultices to abdomen and feet—give Emetic—afterwards Cal. ϵ i. Tinct. Opii gtts. c. *c* Magnesia ʒ iii.—took three doses of Calomel and one of Magnesia.	. .	Cured.
75	Genlal Mora.	10th April, 8 A. M.	Symptoms as above—very violent.	Hot bath—venesection ad ℥ v.—no more blood could be obtained—apply mustard poultices—give Emetic—no effect—Repet. gr. i.	. .	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
				Tart. Emetic, twice vomited—give Calomel ℈ i. Tinct. Opii gtts. c. et Magn. Alb. ʒ iii.—took three doses of Opium and two of Magnesia.		
76.	Luccusa Fakeer.	10th April, 8 A. M.	Symptoms very severe—no pulse—spasms—eyes sunk in sockets—voice gone—thirst great—pain in abdomen—distressing.	Hot bath—venesection—could only obtain ℥ iii. of blood, black as tar—mustard poultices to abdomen and feet—give Emetic—afterwards Cal. ℈ i. *c* Tinct. Opii gtts. c. et Magn. Alb. ʒ iii.—took three doses of Calomel, &c. two of Magnesia, without any effect.	10th April, 4 P. M.	
77.	Choonoosh Sing.	10th April, 9 P. M.	Symptoms correspond exactly with case 76.	Hot bath—could only get ℥ iss. of blood, black as tar—apply mustard poultices—and hot dry cloths to abdomen and feet—give Emetic—afterwards ℈ i. Calomel et Tinct. Opii gtts. c. *c* Magn.—took two doses of Cal. and two of Magn. —but of no use.	10th April, 12 night.	

78.	Adgoo Boornish.	10th April, 12 noon.	Symptoms exactly similar to case 77.	Hot bath—venesection ad ℥ iii. no more blood could be drawn—give Emetic, and apply mustard poultices —after Emetic—give Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia ʒ iii.—three doses of Calomel, &c. and one of Magnesia taken —without any effect.	11th April, 7 P. M.	
79.	Bagh Vai.	11th April, 1 A. M.	Symptoms exactly similar to 78.	Hot bath—apply mustard poultices —venesection ad ℥ v.—no more could be drawn—give Emetic— afterwards ℈ i. Cal. Tinct. Opii gtts. c. *c* Magnesia ʒ iii. This patient took three doses of Calomel and one of Magnesia, when he began to mend.	..	Cured.
80.	Sumbhoo Tatee.	11th April, 7 P. M.	Very severe purging and vomiting—no pulse—excessive cold sweat—spasms—voice gone—eyes sunk—severe pain in abdomen—thirst great— tongue very dry.	Hot bath—could only get vi. oz. of blood—thick and black—apply hot cloths, and also mustard poultices—give Emetic—afterwards Calomel ℈ i. *c* Tinct. Opii gtts. c. et Magnesia ʒ ii.—took three doses of Calomel, and one of Magnesia, when all bad symptoms abated.	..	Cured.

Report of Cholera cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
81.	Ramchund Moduct.	11th April, 10 P. M.	Symptoms very severe—similar to case 80, excepting pain of abdomen.	Hot bath—venesection ad ℥ vi.—no more could be drawn—apply constantly hot dry cloths—give Emetic—afterwards ℈ i. Calomel *c* Tinct. Opii gtts. c. et Magnesia ʒ iii.—continued till symptoms abated—took three doses of Calomel, &c. one ditto of Magnesia.	. .	Cured.
82.	Tolu Boornish.	12th April, 12 night.	Symptoms very severe—with great pain in abdomen.	Hot bath—venesection—could only get ℥ iiiss. of blood—black as tar—mustard poultices, and hot dry cloths constantly to be applied—give Emetic afterwards ℈ i. Calomel *c* Tinct. Opii gtts. c. et Magnesia ʒ iii.—took four doses of Calomel, and two of Magnesia without any relief.	13th April.	
83.	Thurreen Sing.	12th April, 12 A. M.	Symptoms very severe—pain in abdomen great—tongue very dry and brown.	Hot bath—venesection ad ℥ vii.—apply mustard poultice, and hot dry cloths—give an Emetic—afterwards Calomel ℈ i. Tinct. Opii	. .	Cured.

				gtts. c. et Magnesia ʒ iii.—took four doses of Calomel, &c. and one dose of Magnesia.		
84.	Neera Boornish.	12th April, 1 A. M.	Severe pain in abdomen, with all the other symptoms very violent ; but the pulse was a little to be felt.	Hot bath—venesection ad ℥ vii. —mustard poultices, and hot dry cloths to be constantly applied—give an Emetic, afterwards Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia Alb. ʒ iv. The patient took four doses of Colomel—one dose of Magnesia, when the violent symptoms abated.	..	Cured.
85.	Doomun Dhoba.	12th April, 7 A. M.	Symptoms as in case 84.	Hot bath—venesection ad ℥ viii. mustard poultices and hot dry cloths to be applied—give Emetic—and afterwards Calomel *c* Tinct. Opii gtts. c. et Magnesia ʒ iv.—took three doses of Calomel, &c. and one do. of Magnesia.	..	Cured.
86.	Ondry Boornish.	12th April, 7 A. M.	Symptoms as above, with this exception, not the slighest	Hot bath—bled in both arms—only 1½ oz. of blood could be drawn	12th April, 8 P. M.	

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
			pulse—tongue very brown and dry, with severe pain in abdomen.	—mustard poultices, and hot dry cloths to be applied—give Emetic, afterwards ℈ i. Calomel, Tinct. Opii gtts. c. et ʒ iii. Magnesia. Took four doses of Calomel, &c. also three doses of Magnesia. without the slightest abatement of symptoms.		
87.	Cuperam Mahatoo.	12th April, 6 P. M.	Symptoms exactly similar to case 86.	Hot bath—could only get ℥ iiss. of blood—black as tar—mustard poultices to abdomen and feet—give an Emetic, afterwards Calomel ℈ i. et Tinct. Opii gtts. c. c Magnesia ʒ iii. This patient took four doses of Calomel and three of Magnesia.	13th April, 8 P. M.	
88.	Futtu Tatee.	13th April, 4 A. M.	Symptoms exactly in accordance with cases 86 and 87.	Hot bath—venesection ad ℥ iii.—no more could be got—black as tar—mustard poultices, and hot dry	. .	Cured.

				cloths—give Emetic, afterwards ℈ i. Calomel Tinct. Opii gtts. c. *c* Magnesia ʒ iii —took four doses of Calomel, &c. three doses of Magnesia, and all bad symptoms abated.	.	
89.	Narain Chokedar.	13th April, 4 A. M.	Symptoms in every respect exactly similar to 86, 87, and 89 cases.	Hot bath—venesection—could only get ℥ iss. of blood, black as tar—mustard poultice to abdomen—give Emetic, afterwards Calomel ℈ i. *c.* Tinct. Opii gtts. c. et ʒ iii. Magnesia—took four doses of Calomel, and three doses of Magnesia, without any good effect.	14th April, 10 A. M. . .	
90.	Manat Boornish.	13th April, 11 A. M.	Symptoms, in every respect, similar to the last three cases.	Hot bath—venesection ad ℥ iv.—apply mustard poultices—give Emetic — afterwards ℈ i. Calomel, Tinct. Opii gtts. c. *c.* Magn. ʒ iii. This man took four doses of Calomel, also two doses of Magnesia, and all bad symptoms abated.	. .	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
91.	Lusa Boornish.	13th April, 11 A. M.	Symptoms exactly similar to the last four cases.	Hot bath—venesection ad ℥ v.—apply mustard poultices—give Emetic, then Calomel ℈ i. *c* Tinct. Opii gtts. c. et Magnesia ʒ iii.—This man took four doses of Calomel, and three doses of Magnesia, and all symptoms abated.	. .	Cured.
92.	Selagee Lauh.	13th April, 7 A. M.	Symptoms similar to the last five cases, with this exception, the pulse was a little to be felt at the wrist.	Hot bath—venesection ad ℥ ivss.—no more could be drawn—apply mustard poultices—give Emetic, afterwards ℈ i. Calomel. Tinct. Opii gtts. c. *c* Magnesia ʒ iii. This patient took three doses of Calomel, &c. and also three doses of Magnesia, and all bad symptoms abated.	. .	Cured.
93.	Thoosal Boornish.	13th April, 12 night.	Symptoms as in last case—pulse scarcely to be felt.	Hot bath—venesection ad ℥ viii.—mustard poultices—give Emetic, afterwards Calomel ℈ i. Tinct.	. .	Cured.

				Opii gtts. c. *c* Magnesia ʒ iv. Took three doses of Calomel, &c. and two doses of Magnesia.		
94.	Bindrabund Sain.	14th April, 12 night.	Symptoms similar to the late cases, but no pulse to be felt.	Hot bath—venesection ad ℥ viss, of a black tar appearance—mustard poultices—give Emetic, afterwards Calomel ℈ i. et Tinct. Opii gtts. c. *c* Magnesia ʒ ii. This man took three doses of Calomel, &c. likewise three doses of Magnesia, before the symptoms abated.	..	Cured.
95.	Bhow Sing.	14th April, 11 night.	Symptoms as above—only pulse to be felt at the wrist, and no severe pain in the abdomen.	Hot bath—venesection ad ℥ iv.—no more could be drawn—give Emetic, afterwards Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia ʒ iii. Three doses of Calomel, &c. given, and three do. of Magnesia.	..	Cured.
96.	Petoo Sing.	14th April, 11 P. M.	Severe purging and vomiting —no pulse—eyes sunk— voice gone—great perspira-	Hot bath—venesection ad ℥ viii. —mustard poultices—give an Emetic, afterwards Calomel ℈ i.	..	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st *of March to the* 12*th of May*, 1832.

No.	*Names.*	*When admitted.*	*Symptoms.*	*General Treatment.*	*When died.*	*When discharged.*
			tion—spasms severe, and great pain in abdomen.	Tinct. Opii gtts. c. *c* Magnesia ʒ i. This patient took three doses of Calomel, and three doses of Magnesia, when the bad symptoms quickly gave way.		
97.	Sooden Boornish.	15th April, 11 A. M.	Symptoms as in case 96, excepting, the pulse was a little to be felt, and no pain in abdomen.	Hot bath—venesection ad ℥ v.—no more could be drawn—black tar-like stuff—hot dry cloths—give Emetic, afterwards Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia ʒ iii.—three doses of Calomel given and two of Magnesia.	. .	Cured.
98.	Benund Boornish.	15th April, 11 A. M.	Symptoms as in 97—only no pulse to be felt.	Hot bath—venesection ad ℥ iiiss. no more blood could be obtained—hot dry cloths—give Emetic, after, Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia ʒ i.—three doses of Calomel were taken, and one ditto of Magnesia.	. .	Cured.

99.	Roop Sing.	15th April, 11 A. M.	Symptoms as in case 98—no pulse to be felt—he is a good deal exhausted.	Hot bath—give Emetic, and apply hot dry cloths instantly to the abdomen and feet—give Calomel ℈ i. Tinct. Opii gtts. c. *c* Magn. ʒ i. Three doses of Calomel taken, also three doses of Magnesia.	. .	Cured.
100.	Baghit Beri.	20th April, 10 A. M.	Symptoms exactly like 99.	Hot bath — give Emetic — apply hot dry cloths — give Calomel ℈ i. *c* Tinct. Opii gtts. c. *c* Magnesia ʒ iii. Took four doses of Calomel, &c. and four doses of Magnesia.	. .	Cured.
101.	Chamee Bewah.	26th April, 11 A. M.	Severe purging and vomiting —no pulse—great perspiration—eyes sunk—voice gone, —tongue dry—thirst great, —a good deal exhausted.	This woman had the hot bath, afterwards an Emetic, with hot dry cloths constantly applied—give Calomel ℈ i. Tinct. Opii gtts. c. *c* Magnesia Al. ʒ iii. Took three doses of Calomel, and two doses of Magnesia, and bad symptoms ceased.	. .	Cured.
102.	Hurrie Bewah.	26th April, noon.	Severe purging and vomiting —pulse slightly to be felt —great perspiration—spasms violent—eyes sunk, and voice gone—thirst great—tongue	This woman had the hot bath, afterwards an Emetic; when it had operated, Calomel ℈ i. *c* Tinct. Opii gtts. c. et Magnesia Alb. ʒ i. was administered—hot dry cloths	. .	Cured.

Report of Cholera Cases treated in the Bancoorah Hospital, from the 1st of March to the 12th of May, 1832.

No.	Names.	When admitted.	Symptoms.	General Treatment.	When died.	When discharged.
			dry—a good deal exhausted.	constantly applied. Three doses of Calomel—three do. of Magnesia were given, when the symptoms abated.		
103.	Roop Sing.	12th May, 5 P. M.	Severe purging and vomiting—no pulse—great perspiration—spasms—eyes sunk and voice gone—thirst excessive—tongue dry.	Hot bath—venesection ad ℥ iv.—no more could be obtained—give an Emetic, afterwards Calomel ℈ i. Tinct. Opii gtts. c. et ʒ iii. Magnesia Alb. Four doses of Calomel, &c. four do. of Magnesia—this case slowly recovered.	..	Cured.

Total treated, 103
Dead,.. 42
Cured, . 61

All the cases, after the bad symptoms had subsided, were treated with small doses of Spir. Ammon. Arom. et Mist. Camph. and nothing more was required to effect the cure, than slight aperients. Under the head "when discharged," it is to be observed, the patients did not leave the Hospital; but were sent from the Cholera ward to the Hospital. The cases, from first to last, were very severe, with very few exceptions; blood in all was difficult to be drawn, although hot water was applied to encourage the bleeding, and in all the cases, the blood came away, drop by drop, or in a very slow way, in appearance like thick black tar. Total want of secretion of urine in all, and only in two cases, was the mouth affected by the Calomel.

BANCOORAH,
June 8th, 1832.

(Signed,) G. N. CHEEK, *Assistant Surgeon.*

CONCLUDING OBSERVATIONS.

Of the one hundred and three cases in the Schedule, forty-two terminated fatally: of twenty-nine cases, treated on the old system, twenty-three proved fatal: whereas of seventy-four cases, treated by the Emetic remedy, only nineteen had a fatal termination. On some occasions Mr. Cheek would appear to have lost confidence in the Emetic remedy, and returned to the usual mode of treatment. Cases 43, 44, 45, and 52 are instances of this, and valuable they are, as shewing, that the disease had in no wise degenerated in point of virulence; for of the four cases so treated, two, or one-half died. Of sixty-nine persons, who were bled, nineteen only perished; of those, from whom six ounces of blood were obtained, only one died; of those from whom four ounces were obtained, only one died; and in all the other fatal cases, even less than this quantity was procured, so that they may be said not to have been bled at all. The medicine recommended by Mr. Hope of Chatham (nitrous acid ʒ i. camphor mixture ʒ viii. and laudanum gtts. xl.) was exhibited, as directed, in several cases, without apparent advantage. In nine instances, the patients were treated on Mr. Searle's principles, that is with the Muriate of Soda in solution; of these seven died: one was successfully treated with the aid of V. S. to twelve ounces, and another escaped, through the aid of other remedies, after the solution of Muriate of Soda had totally failed to afford any relief. The remedy, however, such as it is, is decidedly no invention of Mr. Searle's; for a very full account of the practice of administering salt and water, in Cholera, is given at page 243 of Dr. Jamieson's Report.

"This practice," he remarks, "was tried very successfully by the Native Doctor with Colonel Skinner's Horse, at Shapoor, in Rajpootana, in the autumn of 1818. Every man was, as soon as taken ill, vomited with salt and water, and then had opiates; and although the corps was largely affected, not a single death occurred." The practice is thus described in a letter from the corps. "Warm salt and water is given till the stomach is well cleared, and then small doses of Laudanum and Peppermint, or the Essence of Cardamoms when the irritability of stomach is stopt; afterwards violent thirst comes on, for which boil Anise, and when cooled, give it as often, as required by the patient. Great numbers were cured by this method. The natives of Indore cured great numbers: I may say the only medicine they had, was juice of onions and bazar arrack. It was also practised at Mhow, and a great number of men were cured in the camps; but with the salt and water, as above, not a single man was lost in this corps: and stopping it suddenly, with a large dose of Laudanum and Calomel, was certain death."

Mr. Searle then, it would appear, has only altered the native practice sufficiently to insure its failure: for I am not prepared to say, that the practice might not be attended with a certain degree of success, if followed up, by the use of opiates and stimulants, as recommended by Dr. Jamieson ; indeed, it is probable, that the administration of any medicine, possessed of Emetic qualities, would, to a certain extent, be found productive of advantage ; at least, it is in favor of such a supposition, that Tartar Emetic has been used with success by Dr. Thomson, Ipecacuan and Tartar Emetic by Mr. Cheek, and Sulphate of Zinc by Mr. Evans ; while every journal teems with the success, which has attended the administration of Emetics of white Mustard, in the disease, as it prevails in Europe.—There is a considerable difference in the mode of exhibiting Emetics recommended by Dr. Thomson, and that practised by Dr. Cheek, and it would ill become me, without positive experience, to offer a decided opinion on the subject. I may however be permitted to remark, that while I would be loath to delay so long, before having recourse to Calomel, opium, and stimulants, as the former, I would be inclined to use Emetics more freely, than the latter.—It will likewise be observed, that there is a discrepancy between the opinions I have expressed, in regard to the time of administration, and the nature of the cases, in which I would have recourse to Emetics, and the practice recorded by Dr. Cheek, the latter exhibiting Emetics in every instance, at the commencement of the treatment, after venesection. I confess, I am in doubt, if Dr. Cheek is not right ; the difference however between us, like that between him and Dr. Thomson, can only be solved, by the result of farther experience, and to that tribunal I commit both for the present*.

The beneficial action of emetic substances, in this disease, is a subject of curious and important speculation. It can scarcely be attributed to their emulging the biliary system; for bile seldom follows their operation: and it is difficult to conceive it to depend on their sedative or depressing influence; for in this disease, they appear to produce little effect of the sort: that they may determine to the surface, and thus relieve internal congestion, is not impossible, although I confess, that such a supposition appears to me somewhat incompatible with their known power of diminishing the force of the circulation. May they not, let us ask, act in some degree by exciting the organs employed in the decarbonizing process? This is a subject on which I can offer nothing farther, than conjecture; but I confess it is one, which I anxiously desire to see brought to the test of experiment. In the commencement of fever, the exhibition of an emetic is often attended with the immediate cessation of morbid action; a circumstance, which may be readily explained, if there is any truth in the above surmise, and in the opinions I have hazarded on the nature of fever; but which it is difficult to account for, on any other supposition.

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* Since writing this Essay, I have been informed, that the following line of practice has been pursued in one of His Majesty's Regiments in this country, with a more than ordinary degree of success. One grain of Tartar Emetic is given in a dose of Senna Mixture, the moment the patient is admitted into Hospital: this is repeated in ten minutes, and again, if full vomiting be not induced; after the operation of the Emetic, forty drops of Tincture of Lytta is given in a little brandy and water, every hour, until re-action is established.

I am unwilling to conclude this communication, long as it has already proved, without returning my best thanks to Drs. Thomson and Cheek. To the former I am indebted for the knowledge of what I consider to be a valuable remedy; and to the latter, not only for the readiness and ability, with which he has put it to the test of experiment, but for the liberality, with which he has favored me with the result.

APPENDIX

TO

PART III.

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
Richard Evans,	14th, 2 A.M.	7. A. M.	Purging, vomiting, and pain across the belly, pulse scarcely to be felt, features collapsed, spasms and cramps, and sinking.	Calomel in scruple doses, with laudanum, frictions, blister to the scrobiculus cordis, magnesia for the vomiting, bled to oz. xiv. effervescent draughts, afterwards purgatives.	-- --	Convalescent.
James Gower,--	15th, 8 P. M.	11 P. M.	Severe vomiting, purging of watery fluid, cramps in legs, oppression, very low, countenance sunk, extremities cold, voice faltering, pulse not to be felt.	Calomel in scruple doses, with laudanum, blister to the abdomen, magnesia for the vomiting, frictions, camphor, ammonia, and opium pills, warm brandy and sago.	16th Mar.	
James Murphy,	15th, 1 A.M.	6 A. M.	Purging, vomiting, with cramps, pulse feeble, extremities cold, restlessness and thirst, great agony and distress, stools watery.	Calomel in scruple doses with laudanum, was bled to oz. xxvi. magnesia for the vomiting, frictions, afterwards small doses of calomel and antimony.	-- --	Discharged well.
George Long,--	16th, 1 P.M.	6 P. M.	Griping, pain in belly and epigastrium, anxiety, oppression, restlessness, nausea,	Bled twice, calomel in large doses, afterwards calomel, antimony, and purgatives.	-- --	Discharged well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
			sickness, and purging, pulse feeble, also vomiting of watery fluid.			
Thomas Hughes,	16th, 5 A.M.	8 A. M.	Seized with giddiness, vomiting, purging, and griping, extremities cold, eyes sunk, no pulse, voice scarcely audible, sinking.	Large doses of calomel with laudanum, blister to the abdomen, frictions, warm brandy and sago.	16th Mar.	
Joseph Clarke,–	16th, 12 P.M.	5 P. M.	Severe vomiting and purging, heaviness at the stomach, pulse quick and feeble, sinking.	Bled to oz. xx. large doses of calomel, magnesia for the vomiting, fomentations, afterwards purgatives.	— —	Discharged well.
George Deane, –	16th, 2 P.M.	3 P. M.	Severe vomiting and purging, pain in the scrobiculus cordis, restlessness, pulse nearly gone, spasms, eyes sunk, extremities cold, sinking.	Bled to oz. xiv. calomel in scruple doses, with laudanum, blister to the chest, magnesia for the vomiting, frictions, warm brandy and sago.	16th Mar.	
Thomas Purcell,	16th, 6 A.M.	8 P. M.	Vomiting and purging, giddiness in head, quite exhausted, pulse feeble, no cramps, eyes sunk.	Bled to oz. xx. large doses of calomel, afterwards purgatives.	— —	Discharged well.

Joseph Kettridge,	16th, 5 P. M.	8 P. M.	Purging, vomiting, and pain in the right side, severe cramps in his legs, pulse quick but small, great restlessness and thirst.	Bled to oz. xx. large doses of calomel with laudanum, blister to the epigastrium, frictions, anodyne enemas, afterwards small doses of calomel and antimony, warm sago and brandy.	--	--	Doing well; convalescent.
William Hollis,	16th, 8 P. M.	11 P. M.	Pain about the epigastrium, nausea, pulse quick, countenance flushed, severe vomiting and purging, no cramps.	Bled twice, calomel in scruple doses, blister to the epigastrium, magnesia for the vomiting, afterwards purgatives.	--	--	Discharged well.
John Herd, ---	16th, 10 P. M.	11 P. M.	Suddenly seized with griping, vomiting, and purging, pain about the epigastrium, cramps in his legs, pulse quick but small, skin cold, eyes sunk.	Bled to oz. xx. calomel in scruple doses with laudanum, blister to the epigastrium, magnesia for the vomiting, anodyne enemas, afterwards small doses of calomel and antimony, purgatives.	--	--	Watery purging continued for several days, with great debility, and swelling of feet. Convalescent.
James Edwards,	16th, 10 A. M.	2 P. M.	Vomiting and purging, pulse feeble, restlessness, extremities cold, sinking, oppression, countenance sunk.	Bled to oz. xiv. calomel in scruple doses with laudanum, magnesia for the vomiting, calomel and antimony in small doses, sago and wine.	17th Mar.		
John Shirley, --	17th, 2 A. M.	5 A. M.	Vomiting, purging, cramps, cold sweats, no pulse, much sunk, look haggard, clammy	Calomel in scruple doses, with laudanum, hot frictions, blister to the epigastrium, warm	--	--	Discharged well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission*	*Remedies employed.*	*When died.*	*Remarks.*
			feel of skin, pain at epigastrium and belly.	baths, magnesia for the vomiting, sago and brandy, afterwards calomel, antimony, and purgatives.		
John Casey, ——	17th, 10 P.M.	11 P. M.	Seized with pain in epigastrium, vomiting but no purging, pulse quick, skin hot, cramps occasionally.	Bled to oz. xx. calomel in scruple doses, blister to the epigastrium, magnesia for the vomiting, friction, afterwards small doses of calomel, antimony, and purgatives.	... ...	Convalcscent.
Henry Cavanagh,	17th, 5 A.M.	8 A. M.	Vomiting and purging, pulse feeble, skin hot, countenance a little altered, and great thirst.	Bled to oz. xxx. scruple doses of calomel, afterwards purgatives.	... ...	Discharged well.
George Baxter,	17th, 7 A.M.	12 A. M.	Severe pain in stomach, with vomiting and purging, cramps in his legs, pulse small and feeble, sinking, eyes sunk.	Bled to oz. xx. calomel in scruple doses with laudanum, frictions, blister to the epigastrium, warm brandy and sago.	17th Mar.	
John Butterworth,	17th, 12 A.M.	2 P. M.	Purging, vomiting, pain in abdomen, extremities cold, pulse scarcely perceptible, countenance sunk, voice feeble.	Scruple doses of calomel with laudanum, blister to the chest, frictions, warm brandy and sago.	17th Mar.	Had a severe attack in Fort William.

Henry Moore, --	17th, 11 A.M.	2 P. M.	Pain in stomach, anxiety, sinking, griping, purging and vomiting, pulse quick.	Bled to oz. xx. calomel in large doses, magnesia for the vomiting, afterwards calomel, antimony, and purgatives.	-- --	Discharged well.
Chr. Travesick,	17th, 4 P. M.	5 F. M.	Bilious vomiting, frequent watery stools, anxious, restless, faint, pain at the epigastrium, great thirst, pulse quick, and sinking fast.	Bled to oz. xx. scruple doses of calomel with laudanum, afterwards calomel,antimony, and purgatives.	-- --	Discharged well.
Thos. Carrotts, --	17th, 11 A.M.	8 P. M.	Vomiting, cramps, pulse quick and full, skin hot, pain in abdomen, chest, and head.	Bled to oz. xx. scruple doses of calomel, blister to the neck, and purgatives.	-- --	Discharged well.
William Moore,	17th, 1 A.M.	8 P. M.	Seized with severe pain in stomach, violent vomiting and purging, sinking, hands cold, pulse not to be felt, cramps of neck and upper extremities.	Bled to oz. xx. scruple doses of calomel with laudanum, blister to the breast, frictions, warm sago and brandy.	21st Mar.	
ThomasDodson,	17th, 10 A.M.	7 P. M.	Pain at the epigastrium, very low and sunk, nausea, (had Cholera at Muttra,) pulse full.	Bled three times, calomel in large doses, magnesia for the vomiting, small doses of calomel, antimony, and purgatives.	-- --	Discharged well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
George Wyatt,	18th, 1 A.M.	4 P. M.	Purging and vomiting, pain in stomach, cramps, pulse quick but feeble, countenance flushed.	Bled to oz. xxx. scruple doses of calomel, magnesia for the vomiting.	— —	Discharged well.
James Gray,	18th, 5 A.M.	7 A. M.	Griping, pain in belly, purging with vomiting, cramps at epigastrium, stools watery, pulse full, anxious, green vomiting, &c.	Bled to oz. xxx. scruple doses of calomel with a grain of opium, magnesia for the vomiting, afterwards calomel, antimony in small doses, with purgatives.	— —	Discharged well.
Edward Rossee,	18th, 7 A.M.	1 P. M.	Griping, nausea, pain in head, watery stools, anxiety and restlessness, pulse quick, sinking.	Bled to oz. xxx. scruple doses of calomel, fomentations, magnesia for the vomiting, afterwards purgatives.	— —	Discharged well.
John Davis,	18th, 5 A.M.	11 A. M.	Purging and severe vomiting of watery fluid, pain in belly, extremities cold, great restlessness, cramps, countenance sunk, is apparently sinking fast, pulse not to be felt.	Calomel in scruple doses with opium, magnesia for the vomiting, frictions, blister to the abdomen, stimulant draughts, brandy and sago.	18th Mar.	

George Lack, ---	18th, 1 P. M.	3 P. M.	Vomiting and purging, great pain in belly, restlessness, pulse feeble, thirsty, faintness, anxiety, distress, too ill to give an account of himself.	Bled twice, scruple doses of calomel with laudanum, blister to the chest, friction, afterwards calomel, antimony in small doses, with purgatives.	---	--- Discharged well.
James Lawson, --	18th, 1 P. M.	3 P. M.	Pain in head and stomach, vomiting with restlessness, no purging, pulse quick, anxiety and distress of countenance.	Bled three times, large doses of calomel, afterwards calomel and antimony in small doses with purgative fomentations.	---	--- Convalescent.
John Beasley, ---	18th, 5 P. M.	7 P. M.	Pain about the stomach, with violent purging, vomiting of watery fluid, pulse quick, cold sweats, countenance sunk.	Bled to oz. xxv. large doses of calomel with laudanum, blister to the breast, frictions, magnesia for the vomiting, æther, laudanum, and ammonia draughts,	21st Mar.	--- ---
Thomas Radsford,	18th, 5 P. M.	7 P. M.	Pain in stomach, with vomiting and purging, pulse quick, skin hot.	Bled to oz. xxx. large doses of calomel, afterwards purgatives.	---	--- Discharged well.
William Topham,	18th, 2 P. M.	8 P. M.	Pain in stomach with vomiting, pulse quick, skin warm.	Scruple doses of calomel, bled to oz. xx. afterwards purgt.	---	--- Discharged well.

Return of Cholera Cases treated in the Hospital of his Majesty's 14*th Regt. from the* 14*th to the* 31*st March*, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
George Aldbury,	18th, 5 P.M.	10 P. M.	Pain in abdomen, with vomiting, pulse quick, skin hot, violent cramps in legs, great thirst, agonizing tremors.	Bled twice, large doses of calomel with laudanum, magnesia for the vomiting, blister to the breast, warm brandy and sago, afterwards small doses of calomel and antimony, with purgatives.	— —	Drunk, exposed to the sun, absent from cantonment all day, bled to oz. xl. with immediate relief.
William Lepper,	18th, 8 P. M.	12 P. M.	Pain in belly and epigastrium, with faintness, seems very low, pulse quick, tongue foul, great anxiety.	Bled to oz. xx. purgatives.	— —	Discharged well.
Samuel Marvin,	19th, 11 A.M.	2 P. M.	Vomiting and purging, pain at the epigastrium, pulse quick, looks anxious and restless, cramps, feet cold, collapsed, sinking, oppression at pericardium.	Bled to oz. xxx. large doses of calomel, magnesia for the vomiting, blister to the scrobiculus cordis, frictions, warm brandy and sago.	20th Mar.	— —
John M'Crea, —	19th, 11 A.M.	1 P. M.	Pain in stomach, nausea, pulse quick, skin warm, seems very uneasy, great thirst.	Bled to oz. xv. scruple doses of calomel and antimony, ipecacuanha enemas, and purgatives,	— —	Discharged well.

Michael Brady,--	19th, 1 P. M.	2 P. M.	Pain in stomach with vomiting, pulse quick, skin warm, face flushed, great thirst.	Bled twice, scruple doses of calomel with laudanum, magnesia for the vomiting, afterwards calomel and antimony, and blister to the neck.	--	--	Doing well.
Anthony Murray,	19th, ½5 P.M.	6 P. M.	Vomiting and purging, restless and very anxious, pain in epigastrium, great thirst, pulse feeble, cramps of legs and loins, vomiting of white fluid, too ill to give an account of himself.	Scruple doses of calomel with laudanum, blister to the scrobiculus cordis, magnesia for the vomiting, frictions, warm sago and brandy, afterwards small doses of calomel, antimony, and purgatives.	--	--	Discharged well.
John Howe, ---	19th, 8 P. M.	9 P. M.	Pain in chest and limbs, purging, great restlessness, pulse quick, distress, retching, pain and oppression came on suddenly, with giddiness and faintness.	Calomel in scruple doses, magnesia for the vomiting, anodyne enemas, afterwards small doses of calomel and antimony with purgatives.	--	--	Discharged well.
Edward Moore,	19th, 10 P.M.	12 P. M.	Giddiness, vomiting green bitter fluid, pain in epigastrium, pulse feeble, tongue foul, no purging, great thirst.	Large doses of calomel, magnesia to prevent vomiting, afterwards purgatives.	--	--	Discharged well.
James Watts,--	20th.	½ 2 P. M.	Vomiting of watery bilious fluid, purging, pain in pericardium and belly, restless-	Scruple doses of calomel. blister to the scrobiculus cordis, magnesia for the vo-	--	--	Discharged well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
			ness, anxious and faint, sinking, pulse feeble.	miting, frictions, afterwards purgatives.		
Thomas Gray, –	20th, 5 A.M.	6 P. M.	Vomiting of green, bitter, bilious, watery fluid, purging and pain at præcordium and belly, slight cramps, oppression, collapsed pulse, feeble, much sunk.	Calomel in scruple doses with opium, blister to the chest, magnesia for the vomiting, afterwards small doses of calomel, antimony, and purgatives.	-- --	Discharged well.
John Whitehead,	20th, $\frac{1}{2}$1 A.M.	11 A. M.	Vomiting and purging, giddiness in head, cramps in limbs, pain in stomach, low and distressed, pulse nearly gone.	Calomel in scruple doses with laudanum, magnesia for the vomiting, blister to the stomach, frictions, afterwards calomel, antimony, and purgatives.	-- --	Discharged well.
Thomas Thompson,	20th, 8 P. M.	11 P. M.	Giddiness and pain in head, vomited bitter and watery fluid, feels low and depressed, no purging, pulse scarcely to be felt, skin cool.	Scruple doses of calomel with laudanum, blister to the stomach, magnesia for the vomiting, frictions, afterwards gentle purgatives.	-- --	Discharged well.
William King, –	20th, 8 A. M.	10 A. M.	Giddiness in head, pain in epigastrium, nausea, purging,	Large doses of calomel with laudanum, blister to the epi-	-- --	Discharged well.

			cramps in legs, restlessness, feels very low, pulse feeble, suddenly attacked.	gastrium, magnesia for the vomiting, afterwards small doses of calomel, antimony, and a purgative.		
George Ochiltree.	21st, 2 A. M.	8 A. M.	Vomiting, violent cramps, pulse feeble, no purging, during convalescence, green bilious purging.	Scruple doses of calomel with laudanum, bled three times, magnesia for the vomiting, frictions, and calomel, antimony.	-- --	Convalescent.
Basil Leggins, -	21st, 7 P. M.	10 P. M.	Vomiting, succeeded by purging. pain in limbs, cold sweats, pulse feeble, oppressed, great thirst, sinking.	Scruple doses of calomel with laudanum, magnesia for the vomiting, effervescent draughts, blister to the epigastrium and spine, stimulating draughts, warm brandy and sago.	28th Mar.	Continued collapsed for five days, then became delirious, heat returned to the extremities; but suddenly died.
Charles Cavanagh,	21st, 7 A.M.	11 A. M.	Purged, pain in epigastrium, has been vomiting, pulse feeble, voice faltering, looks oppressed and harassed, frequent cramps, stools white and watery, voice weak, great thirst.	Scruple doses of calomel, blister to the chest, magnesia for the vomiting, frictions, warm brandy and sago, afterwards purgatives.	-- --	Convalescent.
Thos. Coxhill, -	21st, 5 A.M	½ 3 P. M.	Severe vomiting and purging, very low, can scarcely give	Scruple doses of calomel with laudanum, magnesia for the	22d Mar.	

Return of Cholera Cases treated in the Hospital of His Majesty's 14*th Regt. from the* 14*th to the* 31*st March*, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
			any account of himself, extremities cold, apparently sinking, cold sweats, pulse scarcely to be felt.	vomiting, anodyne draughts with æther, frictions, warm wine and sago.		
Thos. Lepper, –	22d, 6 P. M.	7 P. M.	Purging and vomiting, seems low and exhausted, pulse feeble, perspiration, great thirst.	Scruple dose of calomel with opium.	— —	Discharged well.
Owen M'Dermott,	22d, 7 A. M.	6 P. M.	Purging during the day, stools watery, exhausted, pulse quick and full, eyes sunk.	Bled to oz. xx., scruple doses of calomel, afterwards gentle purgatives.	— —	Discharged well.
Wm. Foreman,	22d, 4 P. M.	7 P. M.	Taken faint on parade with vomiting, looks oppressed, pulse feeble.	A scruple dose of calomel, and purgative.	— —	Discharged well.
James Budding,	22d, 5 A. M.	11 A. M.	Severe vomiting and purging, cramps, cold sweats, stools watery, pulse feeble, skin cold and clammy, very low, and thirsty.	Scruple doses of calomel, magnesia for the vomiting, anodyne enemas, frictions, blister to the breast and neck, stimulating draughts, warm sago and brandy, afterwards calomel and antimony.	26th Mar.	

John Needs,——	22d, 12 A. M.	5 P. M.	Constant vomiting, purging of watery fluid, pain in belly, oppressed and extremely weak, skin cold and clammy, pulse feeble, voice sunk, cramps in legs.	Small doses of calomel with opium, stimulating draughts every two hours, magnesia for the vomiting, frictions, blister to the epigastrium, warm sago and brandy.	23d Mar.	
Joseph Dunkley,	22d, 10 A. M.	8 P. M.	Purging and vomiting, slight cramps in legs, pain at epigastrium, pulse feeble, stools white like milk, oppression and anxiety.	Scruple dose of calomel with opium, calomel in small doses, warm wine and sago.	—— ——	Discharged well.
Serj. W. Moore,	22d, 6 P. M.	8 P. M.	Seized with vomiting and purging, countenance pale, pulse feeble, skin moist, no pain, great thirst.	Anodyne draughts, large doses of calomel, magnesia for the vomiting, blister to the epigastrium, and small doses of calomel and antimony.	—— ——	Discharged well.
Thomas Garret,	22d, 6 A. M.	7 P. M.	Purging and vomiting, cramps, appears low and dejected, pulse quick.	Scruple doses of calomel with laudanum, magnesia for the vomiting, frictions, fomentations, sago and wine, small doses of calomel and antimony, and purgatives.	—— ——	Convalescent.
Robert Thomas,	22d, 6 P. M.	10 P. M.	Pain in stomach, succeeded by vomiting, pulse quick, slight cramps, excessive thirst.	Bled to oz. xx. scruple doses of calomel with laudanum, afterwards calomel and antimony, purgatives.	—— ——	Convalescent.

Return of Cholera Cases treated in the Hospital of His Majesty's 14*th Regt. from the* 14*th to the* 31*st March*, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
Thomas Sharpe,	23rd, 9 P.M.	10 P. M.	Vomiting, pain in the epigastric region, pulse small, skin cold, great thirst.	Scruple dose of calomel with opium, magnesia for the vomiting, calomel, antimony in small doses, anodyne enemas.	— —	Discharged well.
Thos. Johnson, —	23rd, 9 A.M.	½ 11 A. M.	Pain in head with giddiness, looks anxious, purging but no vomiting, great thirst, pain at the epigastrium, pulse quick, nausea.	Bled twice, small doses of the calomel and antimony, anodyne enemas, gentle purgatives.	— —	Convalescent.
Samuel Ross, —	23rd, 9 A.M.	10 P. M.	Pain in chest and epigastrium, vomiting and purging, pulse full, anxious and restless, skin damp and clammy.	Bled to oz. xvi. scruple doses of calomel with laudanum, enema anodyne.	— —	Convalescent.
John Mills, —	23rd, 12 P.M.	10 A. M.	Vomiting and purging, pain at the epigastrium, great restlessness, cold damp skin, pulse soft, collapsed, sinking, reduced, anxious.	Scruple doses of calomel, blister to the scrobiculus cordis and spine, fomentations, frictions, and warm brandy and sago.	24th Mar.	

Jeremiah Fretter,	23d, 7 A.M.	9 A.M.	Severe head-ache, pain in stomach, with bilious vomiting, pulse quick, eyes red.	Bled to oz. xx., scruple doses of calomel, magnesia for the vomiting, blister to the scrobiculus cordis, small doses of calomel and antimony, effervescent draughts.	-- --	Convalescent.
James Willis,--	In Hospital,	reported at 10 A.M.	Vomiting and purging, restlessness, skin cold and clammy, pulse not perceptible, countenance sunk, collapsed.	Large doses of calomel with opium, frictions, blister to the epigastrium, stimulating draughts, warm brandy and sago.	23d Mar.	Sixteen days in hospital with bubo: well at 7 A. M. sinking at 10, and died at 7 P. M.
Thomas Cooper,	24th, 5 A.M.	2 P. M.	Purging and vomiting, pulse feeble, skin cold and clammy, cold sweats, collapsed, great thirst, voice changed, eyes heavy and sunk.	Anodyne enemas, scruple doses of calomel with opium, frictions, blister to the scrobiculus cordis, afterwards small doses of calomel and opium, warm brandy and sago.	25th Mar.	
Patrick Carey,--	24th, 1 P.M.	5 P. M.	Vomiting and purging, cramps in thighs, restlessness, pulse quick, anxious and oppressed.	Calomel and opium in small doses, magnesia for the vomiting, frictions, blister to the scrobiculus cordis, afterwards calomel, antimony, sago and wine.	-- --	Convalescent.
James Stopps, --	24th, ½5 A.M.	8 A. M.	Fainted on parade, very low, has been vomiting, feeble pulse, skin warm, giddiness, anxious looks, depressed.	Scruple doses of calomel. calomel and antimony in small doses, wine and sago.	-- --	Discharged well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14*th Regt. from the* 14*th to the* 31*st March*, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
Wm. M'Leland,	24th, 9 P.M.	½ 10 P.M.	Pain in stomach with vomiting, pulse quick, feet cold, cramps of hands, legs, thighs, muscles of the neck and chest, pain at epigastrium.	Scruple doses of calomel with opium, magnesia for the vomiting, blister to the scrobiculus cordis, bled to oz. xx.	... ..	Convalescent.
Don. M'Intosh,	24th, 5 A.M.	10 A. M.	Pain in belly, has been vomiting green, bilious matter, pulse quick, skin clammy.	Scruple doses of calomel, blister to the epigastrium, frictions, bled to oz. xx. afterwards small doses of calomel and antimony, anodyne enemas.	... ...	Convalescent.
Mich. Whitaker,	24th.	2 A. M.	Giddiness, nausea, great thirst, pain in head, pulse quick, cramps in legs.	Bled twice, large doses of calomel.	... ...	Convalescent.
Henry Turner,--	24th.	6 P. M.	Vomiting and purging, tongue foul, skin clammy and moist, countenance flushed, pulse quick.	Scruple doses of calomel with opium, magnesia for the vomiting, bled to oz. xxv.	... ...	Convalescent.
Simon Leonard,	24th, 10 A.M.	25th, 2 A. M.	Violent cramps in feet, legs, and abdomen, eyes sunk, cold sweat, pulse gone, great restlessness, sinking.	Scruple doses of calomel with opium, frictions, blister to the scrobiculus cordis, warm brandy and sago.	25th Mar.	

Joseph Sylvester,	25th, 5 A.M.	3 P. M.	Purged to-day, faint; sunk low, nausea, retching, and pain at epigastrium and chest, stools watery, great sinking on sickness.	Calomel in small doses, anodyne enemas, Dover's powder, purgatives, and tonics.	---	---	Doing well.
George Harle, --	26th, 5 A. M.	1 P. M.	Seized with watery purging, vomiting of watery fluid, looks sunk and depressed, pain and heaviness at stomach, tongue white, pulse feeble, skin clammy.	Small doses of calomel with opium, anodyne enemas, blister to the scrobiculus cordis, small doses of Dover's powder, magnesia for the vomiting.	---	---	Convalescent.
John Atkins, ---	26th, 9 P.M.	11 P. M.	Vomiting of watery, conjee-like fluid, pain at stomach and epigastrium, has been purged since, eyes heavy and red, pulse feeble, skin cold, cramps in legs.	Large doses of calomel with opium, magnesia for the vomiting, blister to the breast, afterwards small doses of calomel with opium, antimony, and calomel, and purgatives.	---	---	Convalescent.
John Ward, ----	26th, 6 P. M.	7 P. M.	Faint and languid, pain at the stomach and epigastrium, has been purged, no vomiting, pulse regular but weak, tongue white.	Scruple dose of calomel, afterwards small doses of calomel and antimony, purgatives.	---	---	Doing well.
John She ,-----	27th, 8 A.M.	10 P. M.	Seized with severe vomiting of bilious matter, succeeded by watery stools, oppressed,	Small doses of calomel with opium, frictions, anodyne enemas, stimulating draughts,	---	---	Doing well.

Return of Cholera Cases treated in the Hospital of His Majesty's 14*th Regt. from the* 14*th to the* 31*st March*, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
			very low and dejected, pulse feeble, severe cramps in legs and thighs, cold sweats, skin clammy, pain and heaviness at the epigastrium.	blister to the epigastrium, brandy and sago.		
John Rickett,—	28th, 8 A.M.	9 A. M.	Seized with vomiting, succeeded by bilious purging, severe cramps in legs, griping pain about the epigastrium, eyes red and heavy, skin cold and damp, great thirst, pulse feeble.	Blister to the scrobiculus cordis, large doses of calomel with opium, anodyne enema.	— —	Convalescent.
Mat. Darlow, —	28th, 6 P.M.	8 P. M.	Purging, vomiting of bilious matter, pain at the stomach, pulse quick, great restlessness.	Bled twice, scruple doses of calomel with opium.	— —	Convalescent.
John Baker, —	28th, 7 P.M. of the 27th,	29 9 A.M.	Giddiness, with pain in head and epigastrium, vomiting of bilious matter, severe purging, great thirst, pulse feeble, skin moist and damp, looks pale and dejected.	Small doses of calomel with opium, frictions, blister to the breast, anodyne enemas, magnesia for the vomiting, bled to oz. xv., afterwards purgatives.	— —	Convalescent.

Fred. Hobbs, --	28th, 5 P.M.	11 P. M.	Pain in belly and epigastrium, purging, and vomiting of watery fluid, pulse feeble, great thirst, low and dejected, tongue foul, slight cramps.	Calomel in scruple doses with opium, blister to the breast, frictions, magnesia for the vomiting, anodyne enemas.	--	-- Doing well.
James M'Culloch,	28th, 5 P.M.	6 P. M.	Complains of heaviness at the epigastrium, vomiting and purging, giddiness in head, pulse quick, skin moist.	Scruple doses of calomel with opium, bled to oz. xvi. afterwards gentle purgatives.	--	-- Convalescent.
Jacob Carlisle, -	28th, 10 P.M.	11 P. M.	Seized with giddiness and thirst, with sensation of weakness, pulse quick but languid, low and dejected.	Scruple dose of calomel, and gentle purgatives.	--	-- Convalescent.
Daniel Jordan, -	28th, 1 A.M.	7 A. M.	Taken faint on parade, with heaviness at the stomach, seems low and dejected, pulse feeble.	Small doses of calomel and gentle purgatives, bled twice.	--	-- Doing well.
Ezekiel Boot, --	28th, 7 P.M.	9 P. M.	Attacked with vomiting, succeeded by severe cramps in legs, pain at the stomach, pulse quick and full, skin hot, great thirst.	Bled to oz. xxx., scruple doses of calomel, afterwards small doses of calomel and antimony, gentle purgatives.	--	-- Convalescent.

Return of Cholera Cases treated in the Hospital of his Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
Timothy Silby,	29th, 5 A.M.	8 A. M.	Taken with vomiting, pain at epigastrium, eyes heavy and red, great restlessness, pulse feeble, great thirst.	Bled to oz. xv., scruple doses of calomel, afterwards gentle purgatives.	— —	Convalescent.
John Martin, —	29th, 3 A.M.	½ 8 A. M.	Great anxiety, distress and sinking, purging of foul fæces, vomiting of watery fluid, severe pain at epigastrium, cramps in his legs, pulse feeble, countenance sunk, voice changed, skin cold and clammy, apparently sinking fast.	Small doses of calomel with laudanum, blister to the scrobiculus cordis, frictions, anodyne enemas, stimulating draughts, brandy and sago.	29th Mar.	A very delicate subject, had a severe attack of remittent fever in Dec. and dysentery in January.
David Pratt, —	29th, 3 A.M.	6 A. M.	Severe pain at the epigastrium, succeeded by vomiting and purging, pulse feeble, skin cool, restlessness.	Scruple doses of calomel with opium, and gentle purgatives.	— —	Convalescent.
Mich. Buckley,	29th, 5 A.M.	7 P. M.	Vomiting and purging of watery stools, vomiting of watery conjee-like fluid, severe pain in belly and epi-	Calomel in small doses with opium, frictions, blister to the scrobiculus cordis, stimulating draughts, anodyne	— —	Doing well.

			gastrium, violent cramps of the muscles of the legs and thighs, distress of countenance, eyes heavy, pulse feeble.	enemas, magnesia for the vomiting, brandy and sago.		
William Monks,	29th, ¼ 12 P. M.	1 Noon.	Eyes heavy and languid, countenance distressed, faintness, vomiting of muddy slimy fluid, severe pain at epigastrium and belly, great oppression, cramps in feet and legs, pulse slow and feeble, skin moist, great thirst.	Scruple doses of calomel with laudanum, blister to the scrobiculus cordis, sago and wine, afterwards small doses of calomel and antimony.	-- --	Convalescent.
Joseph Lowe,--	29th.	11 P. M.	Taken with violent cramps, seems in agony, vomiting of watery fluid, burning pain at the epigastrium, pulse feeble, skin warm.	Bled twice, scruple doses of calomel, gentle purgatives.	-- --	Doing well.
James Hailes,--	29th, 12 P. M.	30, 4 A. M.	Severe purging of watery fluid, vomiting of thick bilious matter, pulse feeble, pain at the scrobiculus cordis, much oppression, great debility, eyes languid, sinking, cold sweats, respiration laborious, great thirst.	Scruple doses of calomel with opium, magnesia for the vomiting, blister to the scrobiculus cordis, anodyne enemas, stimulating draughts, frictions, sago and brandy.	30th Mar.	

Return of Cholera Cases treated in the Hospital of His Majesty's 14th Regt. from the 14th to the 31st March, 1828.

Names.	*When attacked.*	*When sent to Hospital.*	*State of Disease on Admission.*	*Remedies employed.*	*When died.*	*Remarks.*
William Scott,--	30th, 5 A.M.	6. A. M.	Taken faint on parade, pain in his head and back, slight vomiting, uneasiness, pulse quick, skin natural, giddiness, great thirst.	Calomel in a scruple dose, small doses of calomel and antimony, and gentle purgatives.	--- ---	Doing well.
George Pollard,	30th, 11 A.M.	1 P. M.	Looks very languid and stupid, respiration laborious, purging of yellow watery stools, vomiting of bitter bilious matter, pain in left side, and heat at the epigastrium, faintness, great thirst, pulse full and soft, tongue white.	Small doses of calomel with opium, anodyne enemas, blister to the epigastrium, magnesia for the vomiting, gentle purgatives, warm sago and wine.	--- ---	Doing well.
John White,----	31st.	8 P. M.	Pain at the stomach with nausea, head-ache, uneasiness, pulse quick, skin dry, countenance flushed, great thirst.	Scruple dose of calomel, bled twice, purgatives.	--- ---	Doing well.

FINIS.